Simply

Good and Beautiful

MATH 3

COURSE BOOK

The Good and the Beautiful CURRICULUM

Simply Good and Beautiful MATH 3

COURSE BOOK

Created by the Simply Good and Beautiful Math Team

Reviewed by Deanna Dreher, PhD in mathematics; Tamara Stark, MA in mathematics education; Alia Criddle, MS in mathematics; Nicki Savinda, BS in mathematics with secondary education certification; Jennifer Christensen, BS in elementary education; and Amber Dzubinski, BA in elementary education

The Good and the Beautiful CURRICULUM

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Metric Conversions

Millimeter (mm)	Centimeter (cm)	Meter (m)	Kilometer (km)
	10 millimeters	100 centimeters	1,000 meters
A millimeter is about the width of a pencil tip.	A centimeter is the length of this line segment.	The length of a baseball bat is about one meter.	A long bridge's length is about one kilometer.

Milliliter (mL)	Liter (L)
	1,000 milliliters
A milliliter is about the same as 20 drops of water.	A liter can fill a large water bottle.

Gram (g)	Kilogram (kg)
	1,000 grams
A paper clip weighs about one gram.	A pineapple weighs about one kilogram.

US Customary Conversions

Ounce (oz)	Pound (lb)	Ton (tn)
	16 ounces	2,000 pounds
A slice of bread weighs about one ounce.	A shoe weighs about one pound.	A small car weighs about one ton.

Inch (in)	Feet (ft)	Yard (yd)	Mile (mi)
	12 inches	3 feet	1,760 yards or 5,280 feet
An inch is the length of this line segment.	The length of an adult male's foot is about 1 foot.	The length of a baseball bat is about 1 yard.	The distance you could walk in about 20 minutes is one mile.

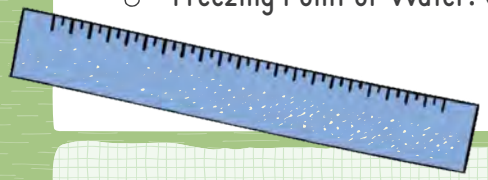
Teaspoon (tsp)	Tablespoon (Tbsp)	Cup (c)	Pint (pt)	Quart (qt)	Gallon (gal)
	3 teaspoons	16 tablespoons	2 cups	2 pints	4 quarts

Formulas

- **Perimeter** = 2L + 2W = L + L + W + W
- **Area** = L × W
- **Volume** = L × W × H

Temperature

- **Boiling Point of Water:** 100 °C or 212 °F
- **Body Temperature:** about 37 °C or 98 °F
- **Freezing Point of Water:** 0 °C or 32 °F



Time Conversions

60 seconds	1 minute
60 minutes	1 hour
24 hours	1 day
7 days	1 week
52 weeks	1 year
365 days	1 year
12 months	1 year

Order of Operations

"Please Excuse My Dear Aunt Sally"
Parentheses, Exponents, Multiplication and Division, Addition and Subtraction

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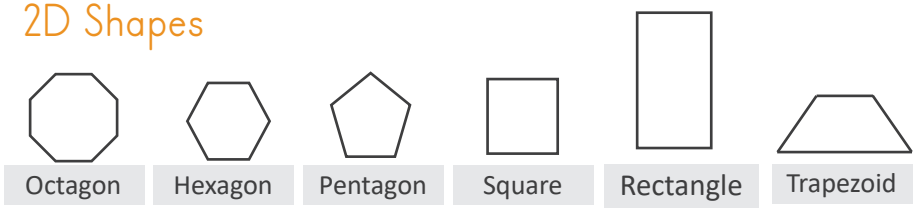
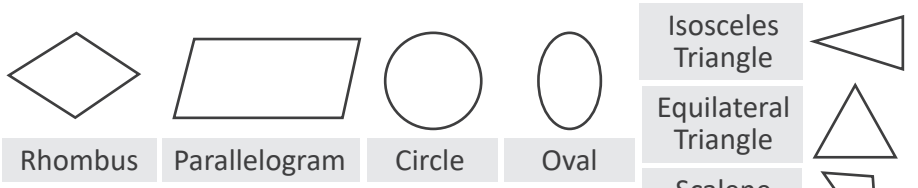
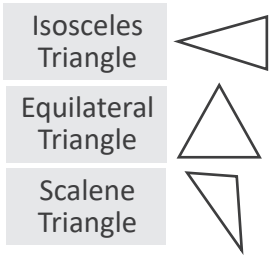
REFERENCES CONTINUED

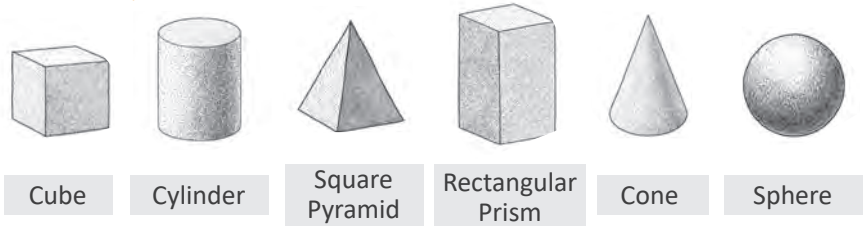
2D Shapes



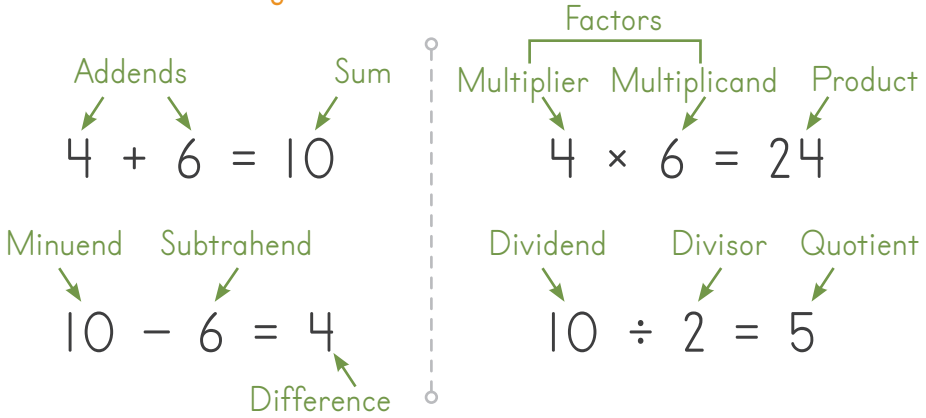




3D Shapes



Parts of an Equation



Skip Counting

3	3	6	9	12	15	18	21	24	27	30	33	36	
4	4	8	12	16	20	24	28	32	36	40	44	48	
6	6	12	18	24	30	36	42	48	54	60	66	72	
7	7	14	21	28	35	42	49	56	63	70	77	84	
8	8	16	24	32	40	48	56	64	72	80	88	96	
9	9	18	27	36	45	54	63	72	81	90	99	108	
11	11	22	33	44	55	66	77	88	99	110	121	132	
12	12	24	36	48	60	72	84	96	108	120	132	144	

Geometry Definitions

- **Point:** a specific position or location
- **Line:** a straight length that continues on forever in both directions
- **Ray:** part of a line that has one endpoint and continues on forever
- **Line Segment:** part of a line that has two endpoints
- **Parallel Lines:** lines that never intersect and are always the same distance apart
- **Perpendicular Lines:** lines that intersect at right angles
- **Intersecting Lines:** lines that cross each other at exactly one point
- **Vertical:** runs up and down
- **Horizontal:** runs left and right
- **Oblique:** not horizontal or vertical

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ABOUT THE COURSE

Supplies Needed

- *Simply Good and Beautiful Math 3 Course Book*
- *Simply Good and Beautiful Math 3 Box*
- Pencil, dry-erase marker, whiteboard, and colored pencils
- Tape or glue, paper clip, and scissors
- Scratch paper
- Optional: *Simply Good and Beautiful Math 3 Answer Key* (available to purchase as a physical product or as a free PDF download at goodandbeautiful.com/math3)

Course Overview

Math 3 consists of 120 lessons divided into four units. Each unit contains themed lessons and ends with a review and assessment. New concepts are taught by the parent, but the child completes practice and review activities independently.

Lesson Overview

Each lesson is 3–4 pages and consists of four parts: mini review, lesson, lesson practice, and review and activities.

Mini Review Box: Each lesson starts with a review box. You can choose to do these items as a review or only do the items the child has not mastered.

Lesson: The lesson sections are parent-directed and provide detailed teaching and interactive practice of the lesson topic. Blue text is instructions to the parent.

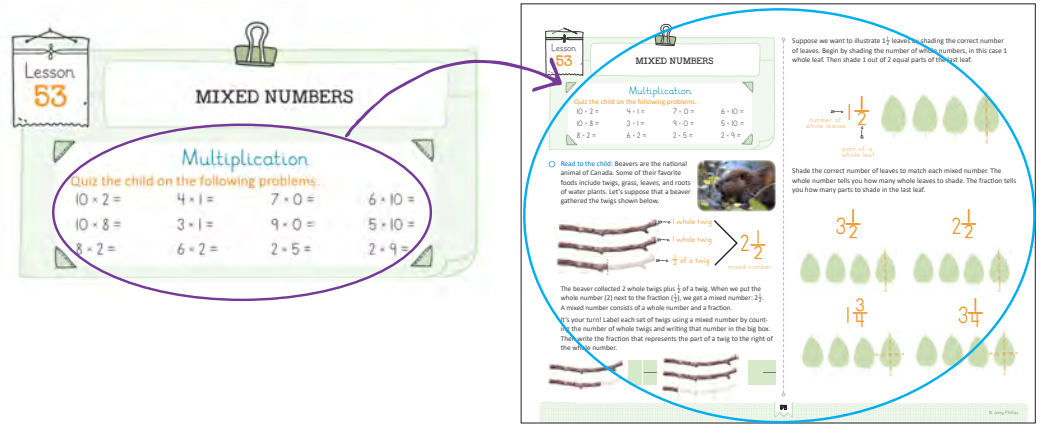
Lesson Practice: Dedicated practice of the lesson topic, this section is designed for the child to complete independently after the lesson with the parent.

Review and Activities: This section reviews concepts from previous lessons using games, activities, and logic puzzles. Children also practice multiplication facts daily. This section may be completed before or after the lesson.

Getting Started

Simply open the course book and start teaching the lesson. Always keep the math box on hand for each lesson. After completing the lesson with a parent or teacher, the child should complete the lesson practice and review and activities.

Parents/teachers should check their children's work daily and provide immediate help and feedback. An answer key is available as a free PDF download to make it easy to check a child's work. A child who struggles with reading may need the parent or teacher to read the instructions in the lesson practice and review and activities sections.



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Frequently Asked Questions

How many lessons should my child do each week?

There are 120 lessons in the course. If the child completes four lessons per week, he or she will complete the course in a standard school year with normal breaks for vacation or sickness.

How long do lessons take?

The average time to complete a lesson is 30–35 minutes. This includes time to teach the lesson, complete the practice and review, and practice multiplication facts.

What if my child is too slow/fast?

- If the child takes longer than average but is understanding and retaining information, don't worry. You may want to break up the lessons. Complete the mini review and lesson practice at one time and the review and activities section at another time.
- If the child is taking less time than average but is learning new concepts, we suggest not skipping entire levels to avoid holes in his or her math foundations. Consider having him or her do multiple lessons a day to complete the course faster.
- If the child takes less than the average time and seems to already know all the information, consider having him or her take the unit assessments. Skip any units or lessons the child shows mastery on. Remember, the first few lessons of the course are review from Math 2, and it's expected that most children will know the information already.

Do you include any specific doctrine?

No, the goal of our curriculum is not to teach doctrines specific to any particular Christian denomination but to teach general principles, such as honesty, hard work, and kindness. All Bible references in our curriculum use the King James Version.

How do you teach multiplication facts?

The process and concept of multiplication is taught over several lessons in Unit 1. Children are then instructed to spend 10 minutes each day practicing one set of multiplication facts. Then they complete a few problems as part of the review and activities.

Families may choose which resources they use. The Good and the Beautiful offers the following options: *Musical Multiplication*, multiplication flash cards, or multiplication practice sheets.

Is Math 3 a parent-directed level?

Math 3 lessons are designed to be parent led. These sections take an average of 12–15 minutes for the parent to teach. The other sections—lesson practice and review and activities—can be done independently by the child. The parent/teacher will need to check the child's work and should do so on a daily basis when possible, providing immediate feedback.

Is Math 3 a spiral or mastery program?

Math 3 is mainly a spiral curriculum, constantly reviewing concepts the child has learned to ensure he or she understands and retains the information.

What if there isn't room to complete the work?

The child may use a personal whiteboard or keep scratch paper on hand while completing the lessons.

Do you follow Common Core?

No, our curriculum does not follow Common Core, but it does maintain a high academic standard, meeting or exceeding state standards.

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MULTIPLICATION
Mastery Chart

SET A	Mastered	Reviewed
3 × 3		
6 × 6		
5 × 3		
8 × 4		
8 × 8		
3 × 4		
5 × 5		
9 × 9		
6 × 4		
3 × 5		
4 × 8		
4 × 3		
4 × 6		

OTHER	Mastered	Reviewed
0s		
1s		
2s		
10s		

SET B	Mastered	Reviewed
4 × 4		
4 × 5		
7 × 3		
7 × 4		
8 × 5		
8 × 7		
9 × 3		
9 × 4		
9 × 5		
5 × 4		
3 × 7		
4 × 7		
5 × 8		
7 × 8		
3 × 9		
4 × 9		
5 × 9		

SET C	Mastered	Reviewed
5 × 6		
5 × 7		
6 × 3		
6 × 8		
7 × 6		
7 × 7		
7 × 9		
8 × 3		
9 × 6		
9 × 8		
6 × 5		
7 × 5		
3 × 6		
8 × 6		
6 × 7		
9 × 7		
3 × 8		
6 × 9		
8 × 9		

SET D	Mastered	Reviewed
12 × 3		
12 × 4		
12 × 5		
12 × 6		
12 × 7		
12 × 8		
12 × 9		
12 × 11		
12 × 12		
3 × 12		
4 × 12		
5 × 12		
6 × 12		
7 × 12		
8 × 12		
9 × 12		
11 × 12		

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Multiplication Chart

How to Use the Multiplication Chart

To use this chart, move your finger across the top row to the first number in the multiplication problem. Then move your finger down to the row that corresponds with the second number in the multiplication problem. The number in this box is the answer.

Parent/Teacher Tip: Add a paper clip to this page for reference so you can easily turn to this page when needed.

Capacity Dice Game Instructions

You will be instructed to play the Capacity Dice Game several times throughout the course. Instructions are included here for easy reference.

Take the capacity dice from the math box. Both players roll one capacity dice at the same time. The player whose dice shows the largest amount wins a point. If the amounts are equal, roll again. Play until one player reaches 3 points.

X	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

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UNIT 1 OVERVIEW

LESSONS 1-30

Extra Supplies Needed

- 1-cup measuring cup
- measuring bowl
- paper clip
- 30 cereal pieces, dry beans, or raisins
- stopwatch
- tape

New Concepts Taught

- Adding and Subtracting Rounded Amounts of Money
- Estimating Elapsed Time
- Estimating Length in Inches and Centimeters
- Identifying and Writing Numbers through the Hundred Thousands
- Multiplying by 100, 1,000, and 10,000
- Rounding to the Nearest Dollar

Concepts Reviewed and Expanded Upon

- Addition with Regrouping
- Data: Pictographs and Tally Charts
- Elapsed Time
- Fractions
- Identifying and Converting Units of Capacity
- Measuring Using Inches and Centimeters
- Metric and US Customary Units
- Multiplication
- One- and Two-Step Story Problems
- Rounding to the Nearest Hundred
- Subtraction with Regrouping
- Telling Time to the Nearest Minute
- Telling Time Using Half- and Quarter-Hour Intervals

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Lesson 1

NUMBERS THROUGH THE TEN THOUSANDS

Skip Counting

Practice these items with the child.

- Skip count by 5s from 5 to 60, clapping your hands once for each number.
- Skip count by 100s from 100 to 1,000.

○ Read to the child: In each unit of this course, we are going to expand our knowledge and have fun as we visit different countries. During the first half of this unit, we will be learning math as we explore China.

Two siblings, 12-year-old Bo and his 10-year-old sister Chun, are helping their town hang up lanterns for the Lunar New Year celebration, which lasts for 15 days. Chun hangs up the 987th lantern. Look at the number 987 on the place value chart here. The digit 9 in the hundreds place represents 900. The digit 8 in the tens place represents 80, and the digit 7 in the ones place represents 7. Writing a number in expanded form means we show the value of each digit using addition. Read aloud the expanded form of 987:

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			9	8	7

900 + 80 + 7

Bo hangs up more lanterns and soon reaches number 999. What number comes after 999? [1,000] Look at the place value chart in the next column. What digit is in the thousands place? [1] What digit is in the hundreds, tens, and ones places? [0]

Notice how there is a comma after the 1 in the number 1,000. Most English-speaking countries and China put a comma between the thousands and hundreds places.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
		1,	0	0	0

Let's look at the number 1,547 and write it using expanded form. With expanded form, we start with the digit with the largest place value. The digit 1 is in the thousands place, so it is 1,000. The digit 5 is in the hundreds place, so we add 5 hundreds, which is 500. The digit 4 is in the tens place, so we add 4 tens, which is 40. The digit 7 is in the ones place, so we finish by adding 7. Read aloud the expanded form for 1,547:

1,000 + 500 + 40 + 7

○ Dictate (read aloud) the following numbers to the child. Have the child write the numbers and their expanded forms on the whiteboard, remembering the commas.

- Seven hundred ninety-three
- Three thousand, eight hundred forty-one
- Five thousand, one hundred twenty-three

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○ **Read to the child:** On the whiteboard write the number that comes after 9. Write the number that comes after 99. Write the number that comes after 999. What number would come after 9,999? Ten thousands is the next place value to the left of the thousands place. This chart shows how we write 10,000. Notice the comma after the thousands place. The digits before the comma are read together—the 1 and 0 represent 10. In the number 57,000, the 5 and 7 are read together to make 57.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	1	0,	0	0	0

Create a number: Take the 10-sided and 6-sided dice from the math box. Roll both dice and write the numbers in the spaces below. Continue rolling until you have two 5-digit numbers. If you roll a 10, then roll again. (Do not use 0.) Now read your numbers aloud. Then write each number in expanded form on the whiteboard.

Mountain Climbers

Let's explore some mountains around Asia. Start at Mt. Elbrus and read the number next to the mountain that shows how high it is in feet. Remember to say THOUSAND at the comma and not to say the word "and" between any numbers. Then roll the 6-sided dice to see what activity to do to climb the mountain. Follow the path from peak to peak, repeating the above instructions with each peak until you have climbed all the mountains.

What did you roll?

1—Do 5 jumping jacks.

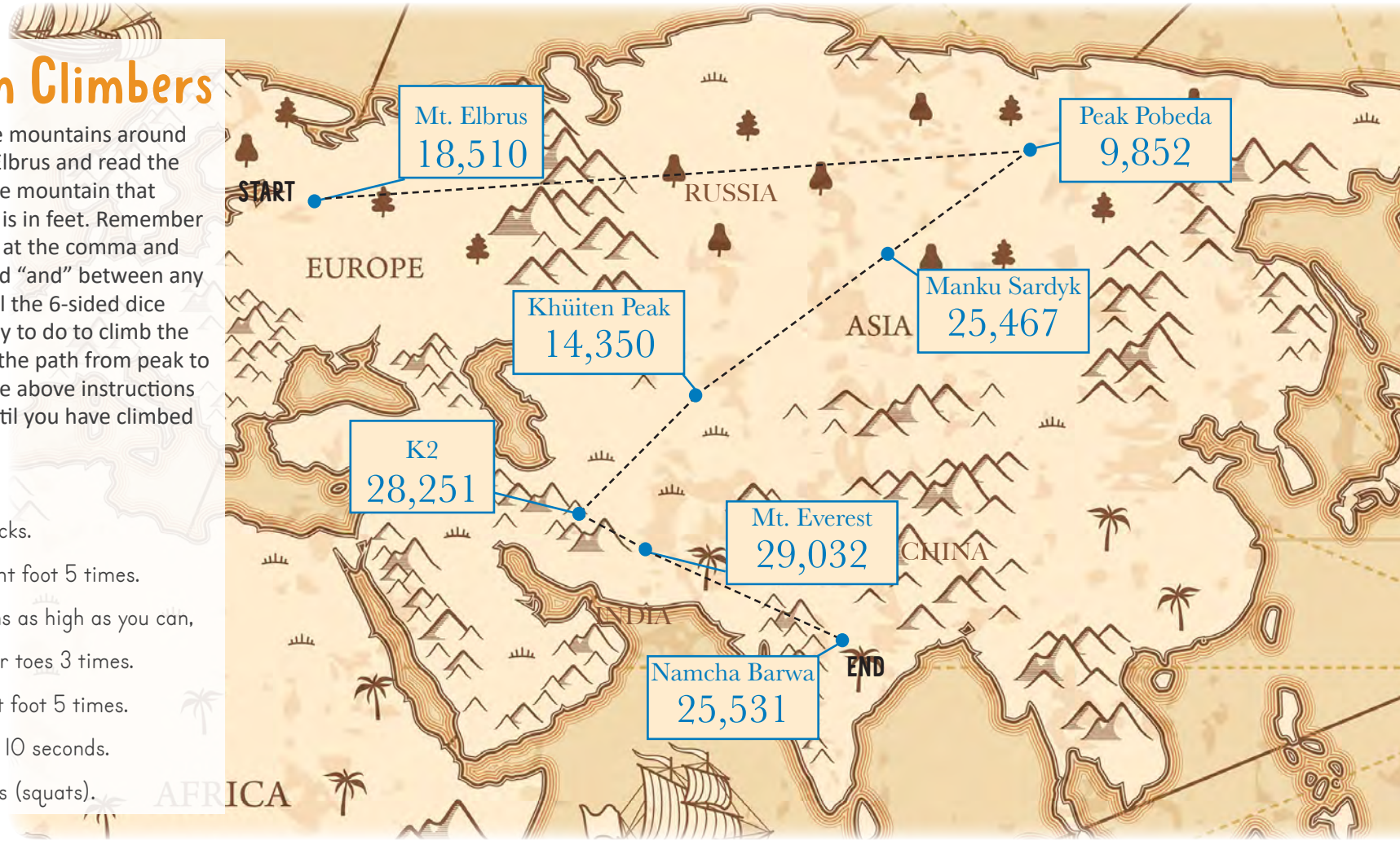
2—Hop on your right foot 5 times.

3—Reach your arms as high as you can, and then touch your toes 3 times.

4—Hop on your left foot 5 times.

5—Jog in place for 10 seconds.

6—Do 5 knee bends (squats).



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LESSON PRACTICE

Parent/Teacher Note: The Lesson Practice section is designed to be done independently by the child in this course. However, if the child struggles with reading, consider reading the instructions aloud for the child.

For each number, circle the matching number word.

46,152	a. Four six thousand, one hundred fifty-two b. Forty-six thousand, one hundred fifty-two
51,316	a. Five hundred thirteen thousand, sixty b. Fifty-one thousand, three hundred sixteen
62,146	a. Sixty-two thousand, one hundred forty-six b. Six thousand, one hundred fourteen six
69,812	a. Sixty thousand, nine hundred eighty twelve b. Sixty-nine thousand, eight hundred twelve

Write the number shown by the expanded form. Remember the comma after the thousands place.

40,000 + 3,000 + 600 + 50 + 8

50,000 + 2,000 + 400 + 30 + 5

70,000 + 4,000 + 100 + 60 + 3

Write the number on the chart. Remember to include the comma.

1. Forty-two thousand, two hundred fifty-one

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

2. Seventy-nine thousand, one hundred sixty-three

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

3. Eighty thousand, six hundred seventeen

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Write the 5-digit number that has 5 in the ten thousands place, 2 in the hundreds place, and 1 in all other places.

China has at least one thousand, three hundred seventeen species of butterflies. Write the number below.

About thirty thousand, one hundred species of plants are native to China. Write the number below.

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REVIEW & ACTIVITIES

Parent/Teacher Note: The Review & Activities section is designed to be done independently by the child. It can be completed either before or after the lesson section.

Complete the addition problems.

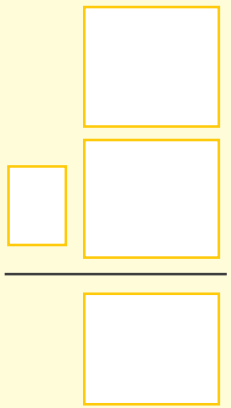
452 + 336	465 + 534	643 + 336	452 + 346

Circle all the odd numbers. Remember that odd numbers always end with 1, 3, 5, 7, or 9.

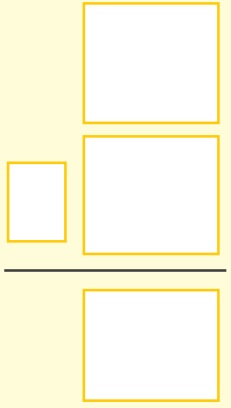
989	758
488	59
723	346
45	781

Read each story problem. Write a problem that represents the story problem, and then complete it.

Bo went to a lantern stand that had 78 lanterns. He bought 44 of the lanterns. How many lanterns are left at the lantern stand? (Write 78 in the first box and 44 in the second box. Then subtract.)



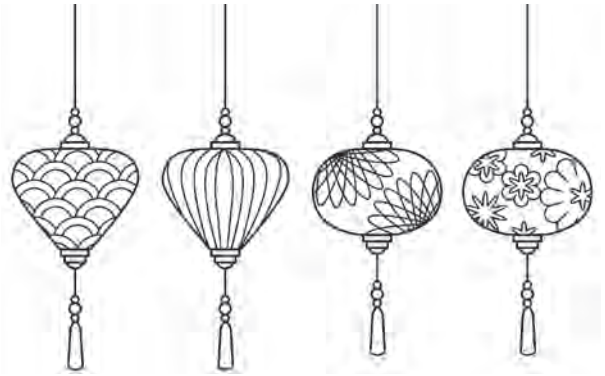
Chun hung 12 lanterns before lunch and 50 lanterns after lunch. How many lanterns did she hang altogether? (Write 12 and 50 in the boxes and add.)



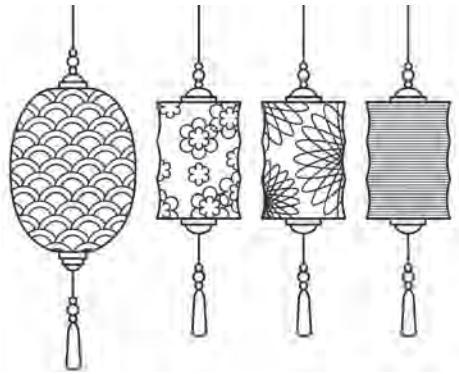
Lantern Logic

Use the clues to color each lantern in each set the correct color. Don't start coloring until you know which color each lantern should be. Tip: Use your colored pencils to arrange the colors in the correct order.

Clues: The green lantern is not next to the red lantern. The yellow lantern is to the right of the red lantern. The purple lantern is not in the middle of the lantern display. The green lantern is between two lanterns.



Clues: The purple lantern is at one of the ends. The red lantern is to the left of the green lantern. The green lantern is not on an end. Neither the purple nor the yellow lantern is next to the red lantern.



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Multiplication Mastery in Math 3

Why and What

The topics below (and others) are taught in Math 3 and can be very frustrating without first having multiplication facts memorized. Helping the child memorize multiplication facts according to the schedule in this course will make it easier for you to teach concepts, make math so much more enjoyable for the child, and give the child more confidence in math.

Area	Measurement Conversions
Fractions	Division
Factors	Number Patterns

In Math 3 children will practice the 1s, 2s, 10s, and 11s times tables in lessons and independent practice sections. Because they are so easy to understand and master, the 1s, 2s, 10s, and 11s are not included in our multiplication practice resources or on the mastery chart. *Musical Multiplication* does not have songs for reverse facts (e.g., 3 × 4 and 4 × 3), but new editions do include flash cards for both facts.

Multiplication Fact Sets

Multiplication facts are taught in four sets as follows:

SET A: 3 × 3, 6 × 6, 5 × 3, 8 × 4, 8 × 8, 3 × 4, 5 × 5, 9 × 9, 6 × 4

SET B: 4 × 4, 4 × 5, 7 × 3, 7 × 4, 8 × 5, 8 × 7, 9 × 3, 9 × 4, 9 × 5

SET C: 5 × 6, 5 × 7, 6 × 3, 6 × 8, 7 × 6, 7 × 7, 7 × 9, 8 × 3, 9 × 6, 9 × 8

SET D: 12 × 3, 12 × 4, 12 × 5, 12 × 6, 12 × 7, 12 × 8, 12 × 9, 12 × 11, 12 × 12

How

Use one or more of the resources below to practice times tables mastery when the lesson instructs you to do so. The course will also guide you through the process of testing, passing off, and reviewing mastery.

Action Item

Get one or more of the resources in purple in preparation for Lesson 6 if the child has not mastered the times tables.

Musical Multiplication

Available for purchase on goodandbeautiful.com.

Multiplication Flash Cards

Available for purchase on goodandbeautiful.com. Also available as a free PDF download. (Go to the Math 3 product page, and then click on "FAQs, Helps, and Extras.")

Multiplication Practice Sheets

Available as a free PDF download on goodandbeautiful.com. (Go to the Math 3 product page, and then click on "FAQs, Helps, and Extras.")

Multiplication Mastery Schedule

The child should memorize one set during each unit of the course.

SET A: Memorize before the end of Unit 1

SET B: Memorize before the end of Unit 2

SET C: Memorize before the end of Unit 3

SET D: Memorize before the end of Unit 4

Q: Why are the times tables not mastered together, like all the 4s at one time? A: While skip counting is a great skill and one we teach, we have found that mixing up the times tables for mastery helps the child rely not on skip counting but on memorization, which is a faster process.

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Lesson 2

ADDITION WITH REGROUPING REVIEW

Mental Math

Read to the child: To add 9 to any number, first add 10 and then subtract 1. Mentally complete the problems in purple. Say the answers aloud.

Example: 29 + 9 [29 + 10 = 39; 39 - 1 = 38]

36 + 9	47 + 9	24 + 9	53 + 9	38 + 9

○ Read to the child: Right outside of Bo and Chun's village is a small bamboo forest and a little lake. One day the siblings went on a picnic. As they walked through the bamboo forest toward the lake, they decided to count all the insects they could find. Because they found some flowering bamboo with many bees, they both counted a lot of insects. Bo counted 468, and Chun counted 524. Let's practice addition with regrouping to find out how many insects they found together.

○ On the whiteboard have the child write the addition problem for the number of insects Bo and Chun found. Guide the child through this addition problem (using the images to the right) as you read the following text aloud:

```
  468
+ 524
-----
```

Remember to start on the right-hand side in the ones column and work to the left. First, add the numbers in the ones column [8 + 4 = 12]. Write the 2 below the line in the ones column and carry the extra ten over to the tens column by writing a 1 on top of the tens column.

```
   1
  468
+ 524
-----
    2
```

Next, add the numbers in the tens column [1 + 6 + 2 = 9]. Write the 9 below the line. Then add the numbers in the hundreds place [4 + 5 = 9]. Write the 9 below the line. Read the answer aloud. Bo and Chun found 992 insects!

```
   1
  468
+ 524
-----
  992
```

○ Have the child complete the following problems, including writing the commas. Then have the child read the answer to each problem aloud.

1,324	5,478	6,462	7,345
+ 1,437	+ 4,418	+ 3,239	+ 1,548

○ Read to the child: Zero has no value on its own, but it acts as a place holder for other digits in a number. Write 502 on the whiteboard. For example, if we took the 0 out of 502, we would have 52, which is a different number. Read the following numbers aloud, noticing how zeros act as placeholders. Say THOUSAND each time you see the comma.

10,506	17,280	58,071	90,310	82,900

On the whiteboard write the number shown by the expanded form. When no value is given for a place value, use a zero in that place.

500 + 7	70,000 + 4,000 + 90	3,000 + 60 + 8

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LESSON PRACTICE

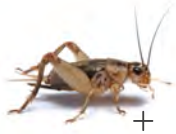
Which insect is commonly eaten in China? Complete the problems, remembering to include the comma. Find the problem with the greatest sum to find the insect that is eaten. Circle it.

cockroach

4,424
+ 2,436

locust

4,348
+ 5,437



cricket

3,357
+ 2,536

honeybee

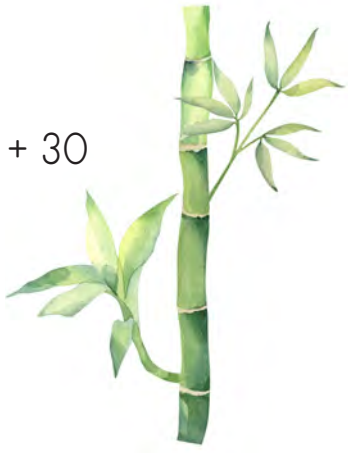
3,448
+ 5,548

Write the numbers shown in their expanded form using zeros as placeholders. In the first number, notice that there are no tens, so write 0 in the tens place. Remember to include commas.

80,000 + 3,000 + 100 + 2

70,000 + 4,000 + 200 + 30

40,000 + 900 + 40 + 2



Write the number on each chart. Remember to include the comma.

1. Three thousand, four hundred two

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

2. Sixty-seven thousand, twenty-one

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

3. Thirty thousand, ninety-seven

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Write the 5-digit number that has 3 in the ten thousands place, 4 in the hundreds place, and 0 in all other places.

Some bamboo can grow as fast as 35 inches a day. Write a problem to figure out how much the bamboo could grow in two days by adding 35 to 35. Then complete the problem.

☐ day 1
\+ ☐ day 2

Bo and Chun's dad needs 148 pieces of bamboo to build a boat and 228 pieces to build a bridge. Write a problem adding those numbers together to figure out how much bamboo he needs to build both items. Then complete the problem.

☐ boat
\+ ☐ bridge

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REVIEW & ACTIVITIES

Figure out the skip counting number pattern and write the missing numbers.

20	40		80		120	

Figure out the skip counting number pattern and write the missing numbers.

6		12	15			

On the bamboo sticks, write the numbers shown by the expanded forms. Write the numbers from greatest to least.

8,000 + 100

20,000 + 2,000 + 300

10,000 + 2,000 + 100 + 20 + 3

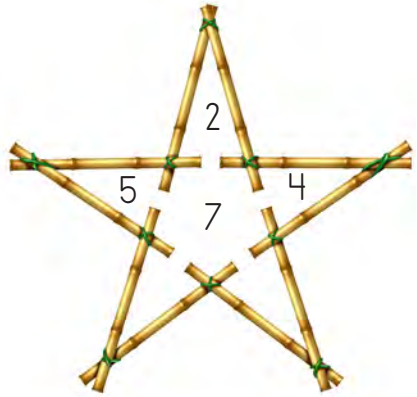
Bamboo Logic

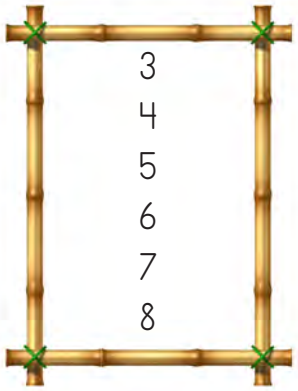
Read the clues to find the secret number. Write the number in the green box.

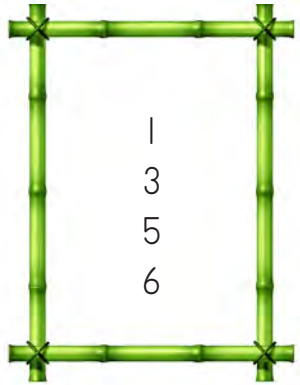
Strategy: As you read through each clue, cross off any numbers inside the shapes that you can eliminate.

Clues:

1. It is in both the brown bamboo rectangle and the star.
2. It is not in the green bamboo rectangle.
3. It is greater than 6.







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Lesson 3

ROUNDING TO THE NEAREST TEN OR HUNDRED

Supplies
paper clip (keep in math box for later)

Skip Counting

Practice these items with the child.

- Skip count by 4s from 4 to 48.
- Skip count by 1,000s from 1,000 to 10,000.

○ Read to the child: Every Thursday night Bo and Chun's family goes to the outdoor street market to sell flowers, fruits, and vegetables from their garden. So far Bo has earned $58 selling his vegetables. Chun has earned $51 selling flowers, and their mother, Lee, has earned $65 selling pomegranates. When their father asked how much they had earned, everyone rounded their earnings to the nearest ten.

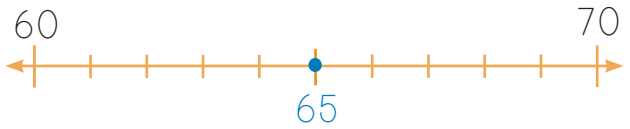
Sometimes when dealing with a lot of numbers or very high numbers, it helps to get an estimate of the numbers first. We call this ***rounding***. Rounding is replacing a number with a number close in value but easier to work with.

○ Read to the child: Let's review rounding to the nearest ten. Look at the number line below. The number 51 is between 50 and 60. It is closer to 50 than 60, so 51 becomes 50 when rounded to the nearest ten. Is 58 closer to 50 or 60? So 58 rounds up to 60 when rounded to the nearest ten.

Have the child draw an arrow from 51 to 50 and from 58 to 60.

Which way should you round a number that is halfway between two tens? The number 65 is halfway between 60 and 70. When halfway, always round up to the larger number, so 65 rounds up to 70 when rounding to the nearest ten.

Have the child draw an arrow from 65 to 70.



If the digit to the right of the place you are rounding to is 0, 1, 2, 3, or 4, round down.
If it is 5, 6, 7, 8, or 9, round up.

○ Read to the child: Practice rounding the numbers to the nearest ten. First, circle the digit in the ones place, which is the place to the right of the tens place. If the digit is 0, 1, 2, 3, or 4, then the digit in the tens place stays the same. If the digit in the ones place is 5, 6, 7, 8, or 9, then raise the digit in the tens place by one to round up. Draw a line to the box with the answer.

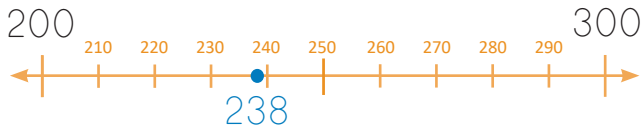
143 167 135 151 124 162 129

120 130 140 150 160 170

© Jenny Phillips

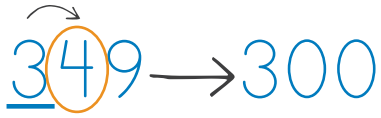
○ Read to the child: Bo and Chun rounded more numbers at the market. They counted 269 customers who walked past their stand. This time they rounded to the nearest hundred. Look at the number line below. Is 269 closer to 200 or 300? Circle the correct answer.

Some of the customers went home, and only 238 remained. Round to the nearest hundred again. Is 238 closer to 200 or 300?

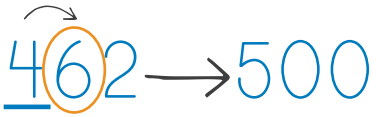


When we round to the nearest hundred, we look at different place values because we always look at the digit to the right of the one we want to round to. Which place value do you need to look at when you round to the hundreds? [tens place]

First, circle the digit in the tens place, which is the place to the right of the hundreds place. If the digit is 0, 1, 2, 3, or 4, then the digit in the hundreds place stays the same.



If the digit in the tens place is 5, 6, 7, 8, or 9, then raise the digit in the hundreds place by one to round up. Write zeros in all the places to the right of the hundreds.



With rounding, it does not matter how many digits are to the left of that place value you are rounding to. They always stay the same. Round the numbers to the nearest hundred and circle the correct answer below.

Rounding Relay

○ **Game—Rounding Relay:** Take the 10-sided and 6-sided dice from the math box. Read to the child: Roll both dice to create a number. For example, if you roll a 7 and a 2, you can choose to create the number 72 or 27. Round the number to the nearest TEN and claim the space below with the answer by writing an X in the space. Then it's my turn. I'll follow the same steps, but write an O to claim a space. If the correct answer is already claimed, then you do not get to mark a space. The person to capture the most spaces wins. If you roll a 10, treat it like a zero.

60	20	70
40	10	50
90	30	80

Game—Spin & Round: Give the child the paper clip. Create a spinner using a paper clip and a pencil. Put the tip of the pencil through the looped end of the paper clip and set the tip of the pencil in the middle of the coin. Flick the paper clip to spin. Round the number to the nearest HUNDRED. Then I'll spin and round. Whoever has the greater number wins that round and puts a check mark in their box below. The first person to win three rounds is the winner. Put the paper clip in the math box when you finish.

Student			Parent/Teacher		

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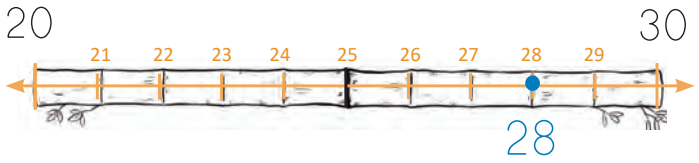
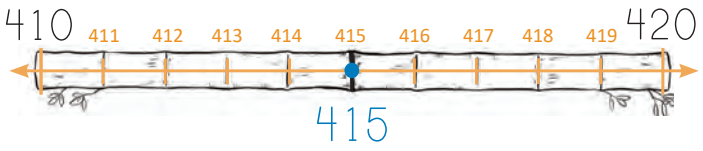
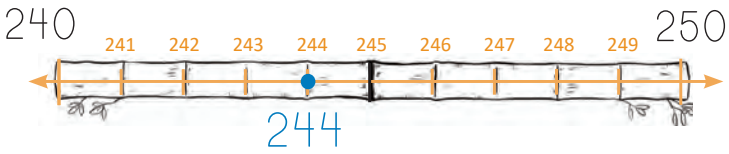
LESSON PRACTICE

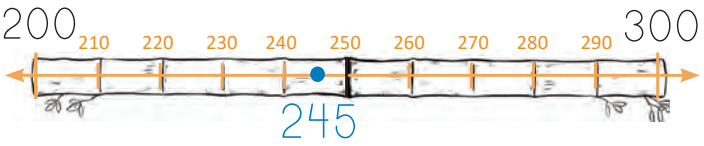
Round each number to the nearest **ten**. Circle the answer.

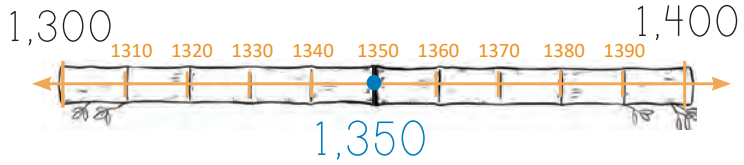


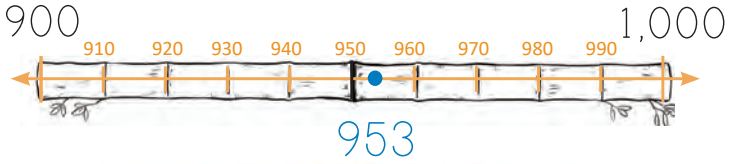




Round each number to the nearest **hundred**. Circle the answer.







After the market closed, Bo and Chun walked home, counting their steps as they went. They counted 254 steps. Circle the correct answers.

1. Round 254 to the nearest **ten**.

   250 260

2. Round 254 to the nearest **hundred**.

   200 300

Round each number to the nearest **ten**. Write the answer in the box.

323	257
85	128

Round each number to the nearest **hundred**. Write the answer in the box.

586	915
355	537
1,347	2,736

The pomegranate is such a common fruit in China that it is sometimes called the Chinese apple. Pomegranates can have up to 1,400 seeds.

Chun's pomegranate had 857 seeds. Round 857 to the nearest **hundred** and write the answer in the box.

Bo's pomegranate had 742 seeds. Round 742 to the nearest **hundred** and write the answer in the box.

About how many pomegranate seeds did Chun and Bo have altogether? Add the **rounded** numbers from the other green boxes to find the answer and write the answer in the box.

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REVIEW & ACTIVITIES

For each addition problem, write the number shown in expanded form in the green box and then add. Remember to use zeros as placeholders and to include commas in the answers.

4,000 + 70 + 7

,
+ 3,437

5,000 + 400 + 2

,
+ 4,238

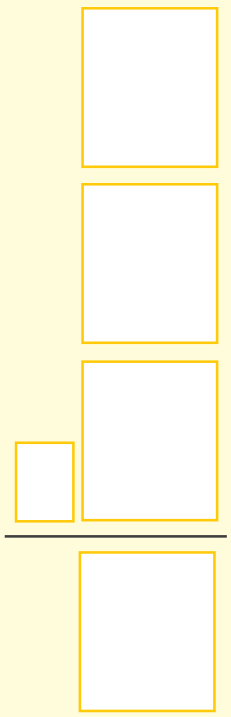
3,000 + 30 + 9

,
+ 5,349

Read the story problem. Write and complete a problem that represents the story problem.

Chun had three vases of flowers to sell at the market. She counted the petals in each vase. The first vase had 45 petals. The second vase had 75 petals. The third vase had 50 petals. Write 45, 75, and 50 in the boxes and add these numbers together.

How many petals does she have altogether?



Circle all the odd numbers. Remember that odd numbers always end with 1, 3, 5, 7, or 9.

1,080	851
234	47
7,022	876
35	1,111

Flower Logic

There is a type of flower that is common in China. It ranges in color from white to pink. Each blossom closes at night and opens in the morning.

To figure out the name of the flower, complete the skip counting pattern. Then use the key to find the letters and decode the name of the flower.

Key

A	O	U	L	R	T	S	F	P
6	125	50	15	45	12	21	120	28

	4			2	
25		75	100		150

		3	1		5
6	9			18	

Name of the Flower

1	2	3	4	5

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Lesson 4

MULTIPLICATION: PART 1

Skip Counting

Supplies
32 pieces of cereal, dry beans, or raisins

Practice these items with the child.

- Skip count by 3s from 3 to 36.
- Skip count backward by 5s from 50 to 0.

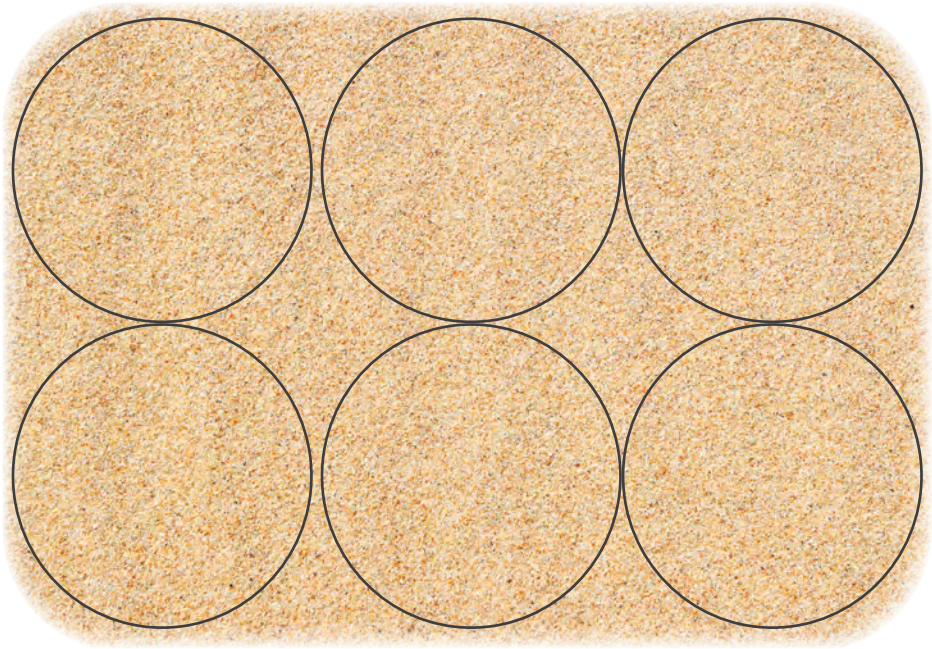
Read to the child: During their summer vacation last year, Chun and Bo enjoyed strolling up and down the beach collecting the most beautiful seashells. They were amazed at how God created each shell with a unique pattern. Chun set out all of her seashells along the sand and noticed that there were 3 groups of 4 seashells.

To find the total number of seashells Chun found, you can count all the seashells one by one, or you can add 4 + 4 + 4. You can even skip count by 4s three times. How many total seashells did Chun find?

Have you heard of multiplication? Let's learn more about how multiplication can help us complete problems quickly. Multiplication means we add equal groups many times. For example, Chun's seashells are in equal groups of 4. Since she has 3 groups, we can add 4 seashells 3 times or multiply 3 times 4, as in this problem shown here. Read the problem aloud with the child, pointing to each part. Say "times" for the multiplication symbol.

$$\underset{\text{groups}}{3} \times \underset{\text{seashells in each group}}{4} = \underset{\text{total seashells}}{12}$$

Give the child 30 cereal pieces, dry beans, or raisins. Bo found 6 groups of 3 seashells. Let's find out how many total seashells he found by placing 3 items (such as cereal pieces, dry beans, or raisins) into each of the 6 circles below.



How many seashells did he find? Fill in the box with the correct answer.

$$\underset{\text{groups}}{6} \times \underset{\text{seashells in each group}}{3} = \underset{\text{total seashells}}{\square}$$

Fill in the blanks by skip counting 6 times by 3s.

3, ___, ___, ___, ___, ___

6 groups

Parent/Teacher Note: This method of modeling can be used with any multiplication problem to build understanding and mastery of this concept. If necessary, continue practicing this with the child by having him or her model 4 × 6, 7 × 2, and 8 × 3. Additional sand frames with 4, 7, and 8 groups of circles can be found on the Lesson 4 page of the Appendix. Then have the child skip count by the number of items in each group, pointing to each group while counting to find the total number.

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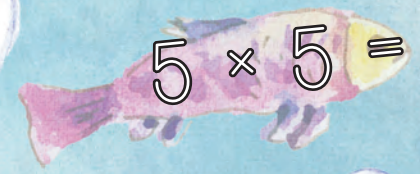
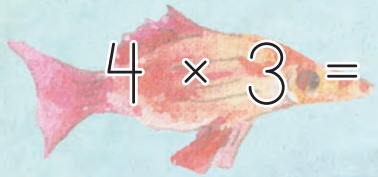
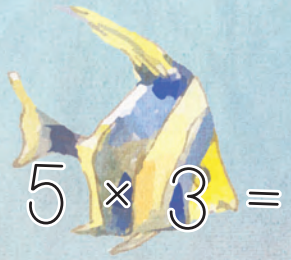
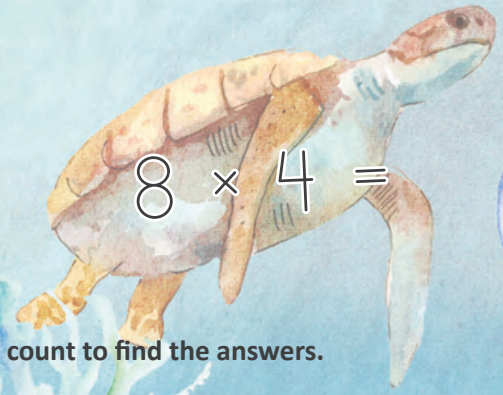
LESSON PRACTICE

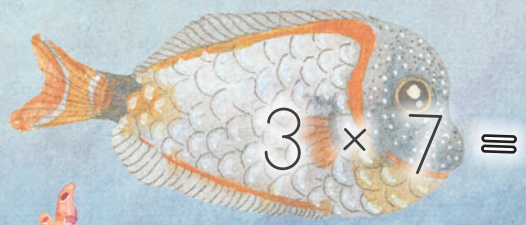
Use your small manipulative pieces from the lesson to create groups and solve each multiplication problem below. Write your answers in the bubbles.











Skip count to find the answers.

6 × 5 =

5, _____, _____, _____, _____, _____

6 × 2 =

2, _____, _____, _____, _____, _____

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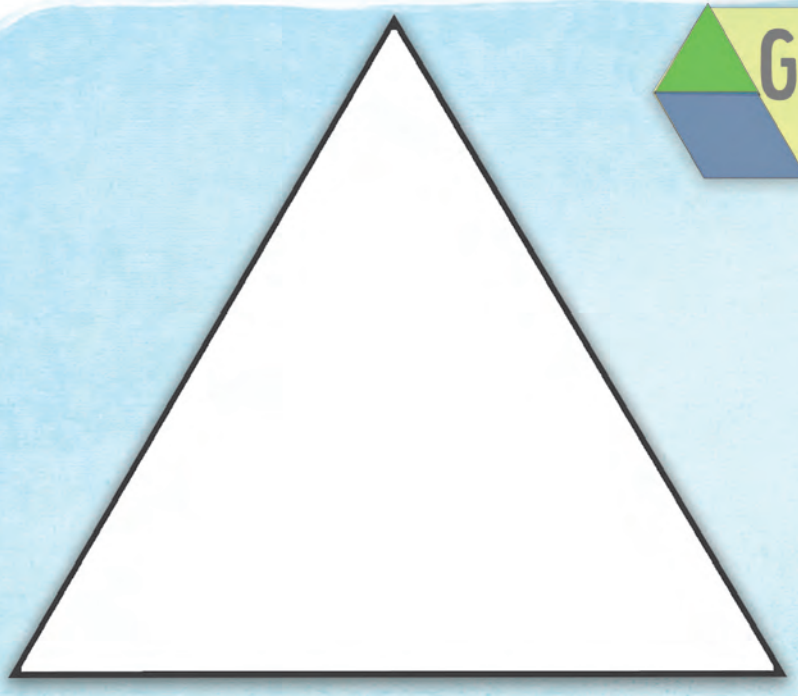
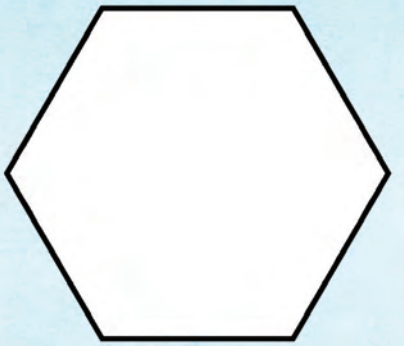
Geometric Games

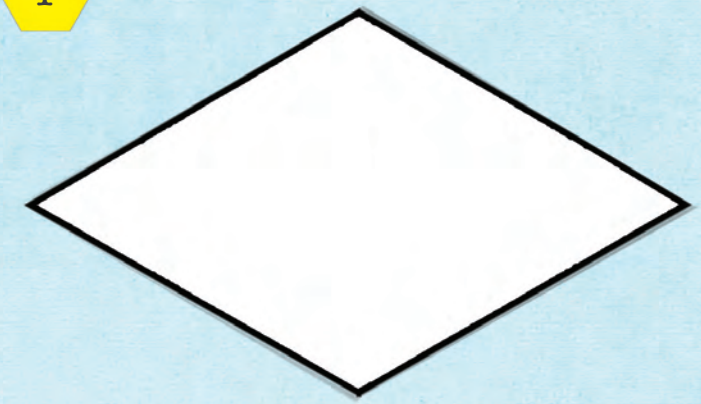
Use the shapes from the math box to create the large white shapes. In each white shape, draw the shapes you used to create the white shape.



2 4 1



1 1 1



2 2

1 1 1 1

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REVIEW & ACTIVITIES

Circle the digits that round up to ten.

5 8 2 9 6

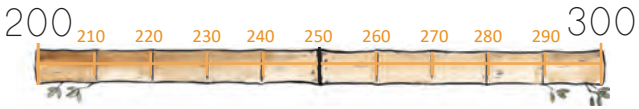
3 1 7 4 0

Circle the correct answers.

1. Round 426 to the nearest **ten**.

2. Round 752 to the nearest **hundred**.

3. Round 247 to the nearest **hundred**.



Write the numbers shown in expanded form in the green boxes below and complete the problems. Remember to use zeros as placeholders and to include commas in the answers.

6,000 + 50 + 1

,
+ 3,437

5,000 + 400 + 2

,
+ 4,238

Write the number on the chart. Remember to include the comma.

1. Sixty-seven thousand, twenty-six

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

2. Twenty-one thousand, ninety-seven

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Complete the problems. Write the answers in the spaces below.

There were 1,762 people at the beach when Chun and Bo visited it. Round this number to the nearest hundred.

While snorkeling, Bo counted 85 fish in the ocean. Round this number to the nearest ten.

Number Logic

What is the largest number you can create using each of these digits once?

7 6 9 4

What is the smallest number you can create using each of these digits once?

3 7 4 1

Unscramble the letters to find a number word.

- veens _____
- reeth _____
- vief _____
- ienn _____

Draw the hands on the clock to represent the time shown. Remember that the hour hand moves closer and closer to the next number as the minutes go by.

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Lesson 5

MULTIPLICATION: PART 2

Mental Math

Read to the child: Did you know that if you can add 9 + 5, you can also add 90 + 50? And 900 + 500?

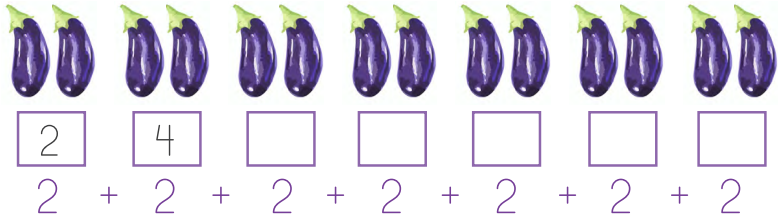
Example: 9 + 5 = 14 | 90 + 50 = 140

900 + 500 = 1,400 | 9,000 + 5,000 = 14,000

Complete the problems in your mind and say the answers aloud.

3 + 8	30 + 80	300 + 800	3,000 + 8,000

○ Read to the child: The next week on Thursday morning, Bo, Chun, and their mom prepare for the market. Bo sells eggplants, a vegetable that has been eaten in China for more than 2,000 years. He places 2 eggplants in each bag. Chun sells lotus flowers in bunches of 10. Their mom sells pomegranates in boxes of 5. Help them count how many of each item they have to sell at the market today. Have the child circle each pair of eggplants, and then fill in the blank boxes.



2	4					

2 + 2 + 2 + 2 + 2 + 2 + 2

We can multiply the number of groups by the number of eggplants in each group:

7 groups of 2 eggplants in each group is 14 eggplants.

7 × 2 = 14

We can think of multiplication as the number of groups times the number of items in each group.

10	20					

10 + 10 + 10 + 10 + 10 + 10 + 10

We can multiply the number of bunches by the number of flowers in each bunch:

7 bunches × 10 flowers in each bunch = 70 flowers

5						

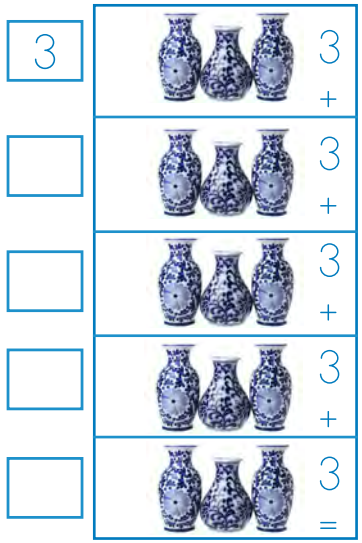
5 + 5 + 5 + 5 + 5 + 5 + 5

We can multiply the number of boxes by the number of pomegranates in each box:

7 boxes × 5 pomegranates in each box = 35 pomegranates

○ Read to the child: At the market later that day, Chun saw some beautiful vases on shelves. Three vases were on each shelf. How many vases total were on the shelves? Add each shelf of vases to the previous shelves by adding the numbers in the boxes.

5 shelves × 3 vases on each shelf = _____ vases



Cover the vases with your hand and read: If someone bought all the vases and there were zero groups of 3, how many vases would you have? [0] Zero multiplied by any number always equals zero.

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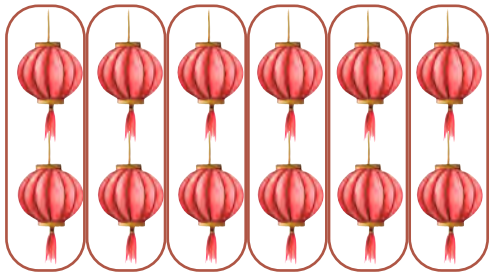
LESSON PRACTICE

How many items are there? Use skip counting or repeated addition to help complete the problems.



6 groups of 2 lanterns

6 × 2 = ____

4 groups of 5 vases

4 × 5 = ____

3 groups of 10 flowers

3 × 10 = ____

Draw a line to match the problem with the correct image. Then use skip counting or repeated addition to solve the problems.

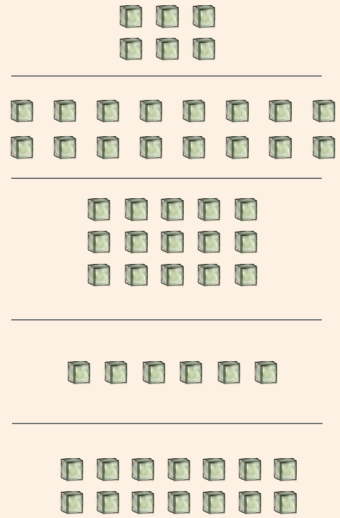
2 × 8 = ____

3 × 5 = ____

2 × 3 = ____

2 × 7 = ____

1 × 6 = ____

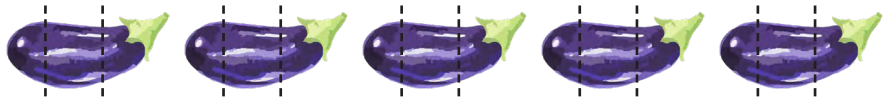


Write a multiplication problem for each question and complete it.

1. Chun sold 7 bunches of 10 flowers. How many flowers did she sell?

2. Bo sold 5 bags of eggplants with 2 in each bag. How many eggplants did he sell?

3. If each eggplant can feed 3 people, how many people can you feed with 5 eggplants?



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REVIEW & ACTIVITIES

Circle the correct answers.

1. Round 353 to the nearest **ten**.

   350 360

2. Round 655 to the nearest **hundred**.

   600 700

3. Round 348 to the nearest **hundred**.

   300 400

Round each number to the nearest **ten**. Write the answer in the box.

424	1,055
35	228

Round each number to the nearest **hundred.** Write the answer in the box.

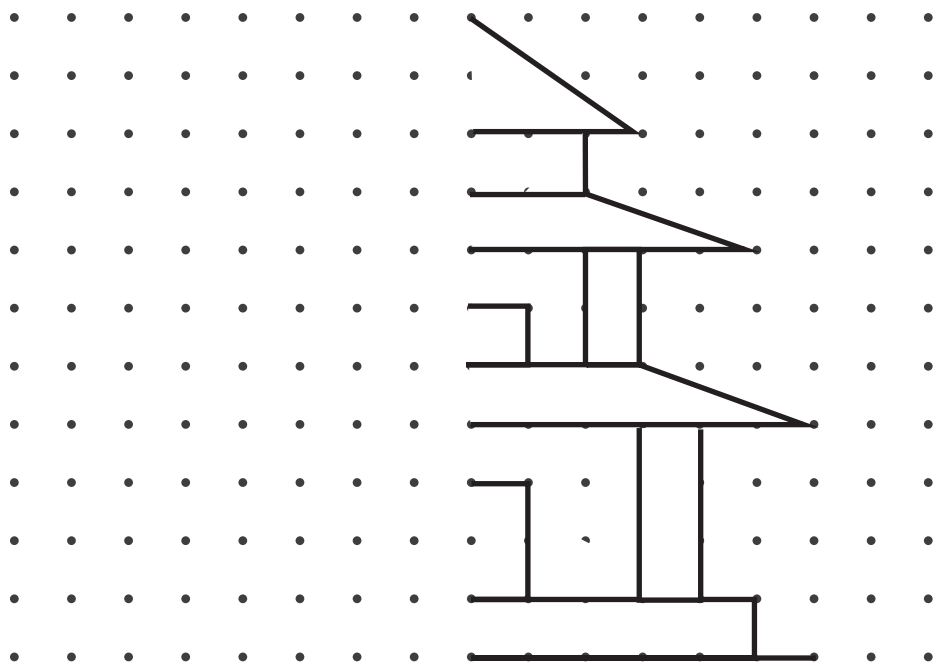
387	3,015
2,054	11,535

For each addition problem, write the number shown in expanded form in the green box and then add. Remember to use zeros as placeholders and to include commas in the answers.

5,000 + 40 + 7	4,000 + 300 + 6	2,000 + 200 + 8	4,000 + 20 + 9
,	,	,	,
+ 2,327	+ 5,248	+ 7,238	+ 4,369

Pegboard Symmetry

Draw the missing half of this Chinese building called a pagoda. Make sure your side of the building looks the same as the one shown. Use the dots to help you.



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Lesson 6

MULTIPLICATION: PART 3

Skip Counting

Practice these items with the child.

- Skip count by 10s from 100 to 200.
- Count by 25s from 25 to 300.

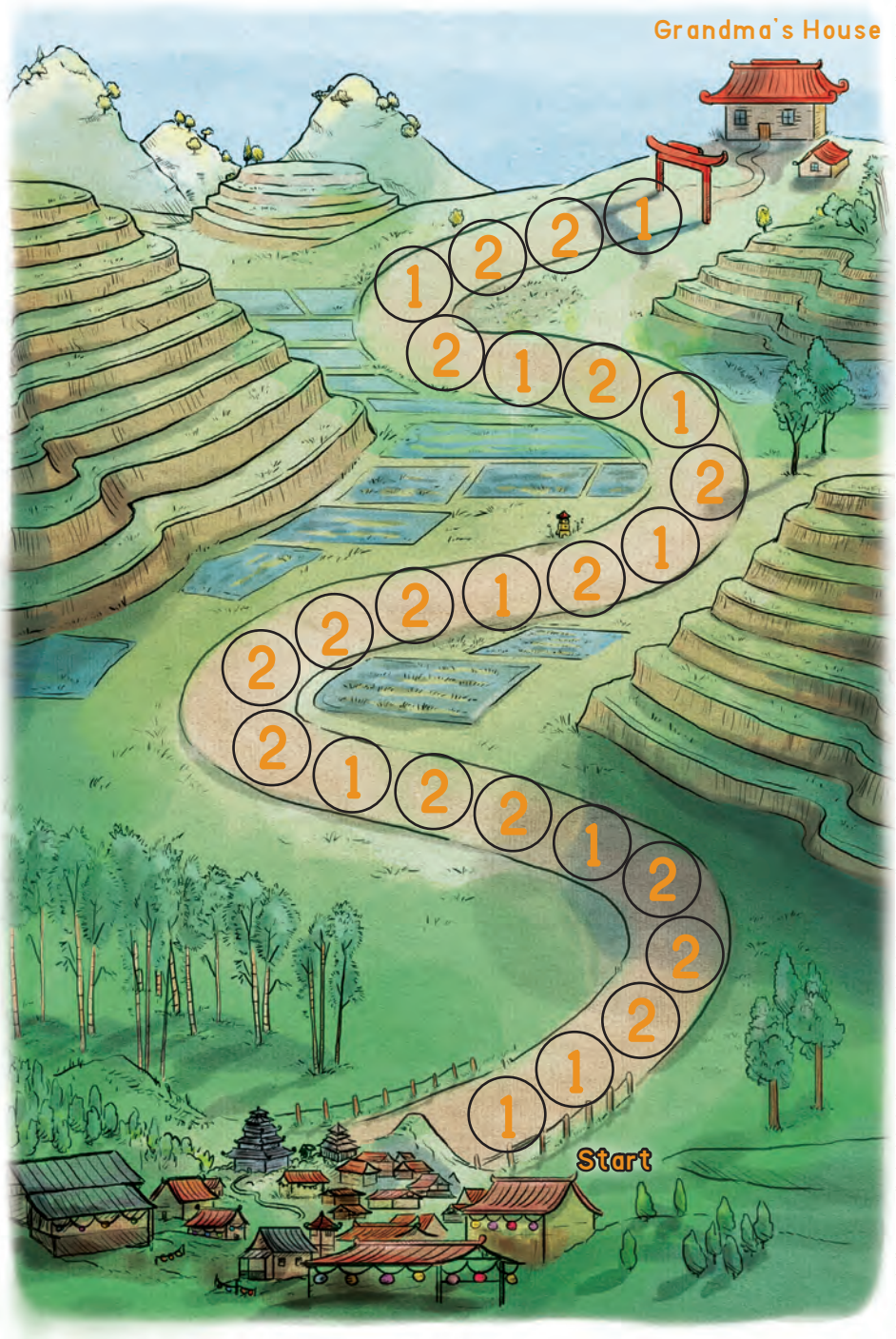
○ Read to the child: Any number multiplied by 0 is always 0. For example, if I have 0 groups of 2 chopsticks, I have 0 chopsticks. Tell me the answers aloud to the following problems: 0 × 9, 0 × 35, 0 × 0, 0 × 100. [all = 0]

Let's talk about how to multiply by 1. If I have one group of 10 chopsticks, how many do I have? [10] Any number multiplied by 1 equals that same number. Tell me the answers aloud to the following problems: 1 × 17, 1 × 45, 1 × 1, 1 × 23. [17, 45, 1, 23]

Multiplying a number by 2 is the same as doubling the number. 4 + 4 is the same as 2 × 4 because there are 2 groups of 4. Tell me the answers aloud to the following problems: 2 × 3, 2 × 5, 2 × 6. [6, 10, 12]

When you multiply a number by 10, it is similar to multiplying by 1, except that you write a zero after the number. For example, if I have 10 × 4, I can think of 1 × 4, which is 4. Then I can write a zero at the end to get 40. Tell me the answers aloud to the following problems: 10 × 2, 10 × 5, 10 × 7, 10 × 1, 10 × 3, 10 × 6. [20, 50, 70, 10, 30, 60]

○ **Game—The Path to Grandma's House:** Take the 6-sided dice and game pawns from the math box. Let's see how many rolls it takes to get Bo and Chun to Grandma's house. First, you will roll the dice. Multiply the number on the dice by the number in the first spot. Say the answer aloud and move your game piece forward that many spaces. Then it will be my turn, and I'll follow the same steps. We'll continue taking turns until someone gets to Grandma's house. Play the game two or more times.



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○ Read to the child: Memorizing multiplication facts is an important part of this course. Knowing the answers to multiplication problems instantly makes many math concepts much easier to teach and to learn. Many math concepts, like division, use multiplication. Memorizing the multiplication facts will give you confidence and success as you learn new principles of math that use multiplication.

Read aloud if the child does not have all multiplication facts memorized. (If the child has memorized all facts, skip this box and go to the green box.) You will work on memorizing one set of multiplication facts during each unit of this course. We will use the chart on page viii to keep track of your progress. The course will tell me when to quiz you on mastery and use the chart. Show the child the Mastery Chart on page viii. In most independent practice sections, the course will instruct you to work for 10 minutes or more on multiplication facts. Discuss with the child which of the resources or combination of resources you will be using: *Musical Multiplication*, flash cards, and/or multiplication practice sheets. Prepare the resources. Help the child understand the instructions and how to access the resources each day. You will be practicing Set A in this unit, beginning with the next lesson.

Read aloud if the child already has all multiplication facts memorized: You already have your multiplication facts memorized, but we will use the chart on page viii to double-check your mastery. Show the child the Mastery Chart on page viii. The course will tell us when to quiz you on mastery and use the chart. In most independent practice sections, you will see a box like the one below. You do not need to complete the 10 minutes or more of math fact practice, but you should write the answers to the problems you see. This will help you review and retain the facts you have already learned.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

4	3	6	5	8	8	5
× 3	× 3	× 6	× 3	× 4	× 8	× 5

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REVIEW & ACTIVITIES

Round each number to the nearest **ten**. Write the answer in the box.

672 ☐ 83 ☐

294 ☐ 1,129 ☐

Round each number to the nearest **hundred.** Write the answer in the box.

2,462 ☐ 3,478 ☐

Complete the problems.

76	55	88
- 35	- 23	- 43

Write the number shown in expanded form in the green box and then add. Remember to use zeros as placeholders and to include commas in the answers.

2,000 + 30 + 8

,
+ 2,436

8,000 + 200 + 4

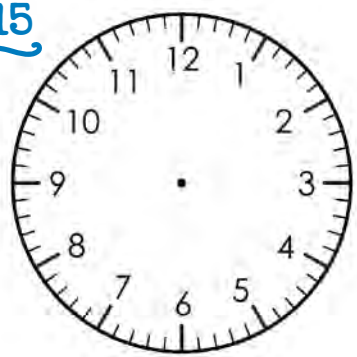
,
+ 6,333

A small rice paddy field produced 6,824 pounds of rice last year. This year it produced 7,185 pounds of rice. How much rice did it produce for both years combined?

6,824
+ 7,185

Draw the hands on each clock to represent the time shown. The hour hand moves closer and closer to the next number as the minutes go by.

4:15

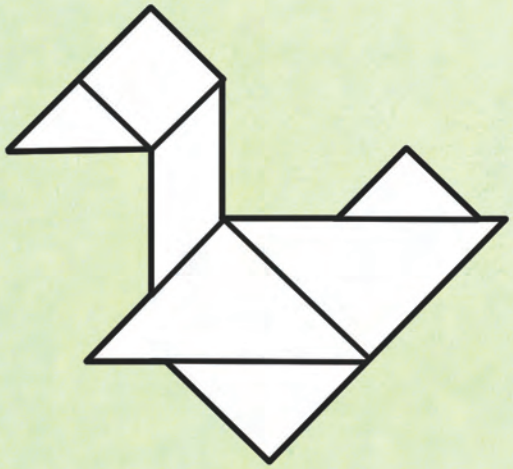


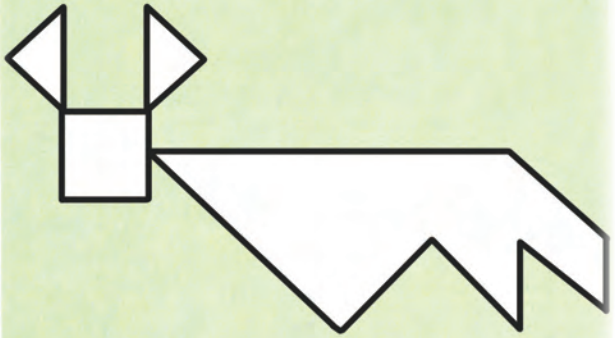
7:30

2:45

Tangram Logic

Take all the orange tangram pieces from the math box and use them to create the images.





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Lesson 7

SUBTRACTION WITH REGROUPING REVIEW

Skip Counting

Practice these items with the child.

- Skip count by 2s from 20 to 60.
- Skip count backward by 10s from 1,000 to 800.

○ Read to the child: In the tall mountains beyond Bo and Chun's village are cool, wet bamboo forests where giant pandas live. Giant pandas love to eat bamboo and spend most of their day chewing on sticks and leaves. Let's suppose that the panda in this photo has 964 bamboo sticks in his favorite part of the forest. In one month he ate 475 bamboo sticks. Let's practice subtraction with regrouping to find out how many bamboo sticks are remaining in his favorite part of the forest.

○ On a whiteboard or scratch paper, have the child write the subtraction problem to find how many bamboo sticks are left. Guide the child through this subtraction problem (using the images to the right) as you read the following text aloud:

```
  964
- 475
-----
```

Start on the right-hand side in the ones column. Can you subtract 5 from 4? [no] You don't have enough ones, so you need to borrow from the tens place. We can trade 1 ten for 10 ones. This is called ***regrouping***. Cross out the 6 and change it to 5 to show you took away a ten. Add the ten to the ones place by writing a 1 next to the 4. Now you have 14 ones. Subtract 14 − 5 = 9.

```
   5
  9 6 14
- 4 7 5
-------
    9
```

Move to the tens place. Can you subtract 7 from 5? [no] You cannot because you don't have enough tens, so you need to borrow from the hundreds place. We can trade 1 hundred for 10 tens. Cross out the 9 and change it to 8 to show you took away a hundred. Add the 10 tens you borrowed to the tens place by writing a 1 next to the 5 to show that you have 15 tens. Subtract 15 − 7 = 8. Move to the hundreds place and subtract 8 − 4 = 4. How many total bamboo shoots are left?

```
   8 15
  9 6 14
- 4 7 5
-------
  4 8 9
```

○ Have the child complete the following problems. Remind the child to include the commas and read the answer to each problem aloud.

```
  5,568        3,354        6,162
- 4,392      - 1,437      - 3,239
-------      -------      -------
```

○ Read to the child: In subtraction problems, you often start with the total amount and subtract the smaller part. If 5 pandas were eating near a lake and 3 walked away, how would you find the number of pandas remaining? Write the total number that were at the lake at the beginning, and then subtract the number that went away. Write an equation for this story.

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LESSON PRACTICE

Complete the problems. Remember to include the comma. Then circle your favorite baby animal.

4,424
- 2,436

6,335
- 3,437

6,529
- 3,437

3,480
- 2,348

Complete the story problems below and to the right.

A female giant panda can weigh up to 220 pounds. Bo weighs only 110 pounds. How much less does Bo weigh than the giant panda? (Hint: write the greater weight first and subtract the lesser weight.)

In 1975, there were 2,459 pandas living in the forests of China. By 2014, there were only 1,864 pandas living in the forests of China. How many fewer pandas were there in 2014? (Hint: Write the larger number of pandas first and subtract the smaller number to find the difference.)

Take the 10-sided and 6-sided dice from the math box. Roll both dice and fill in the boxes with the numbers you roll. Then complete the problems. If you roll a 10, write the digit 0 in the blank.

8 _
- 5 _

7 _ 2
- 8 _

9 _
- _ 7

3, _ 09
- 6 4

Roll both dice from the math box. Subtract the lesser number from the greater number. Cross off the answers below until you get three in a row. If your answer is zero or you already crossed off the number that matches your answer, roll again.

7	4	9
1	6	5
8	2	3

This mother panda had 135 shoots of bamboo. She gave 56 shoots to her cub. How many shoots did she have left for herself?

Panda cubs are cared for by their mothers for about 498 days. This panda cub is 372 days old. How many days does he have left until he is old enough to live on his own?

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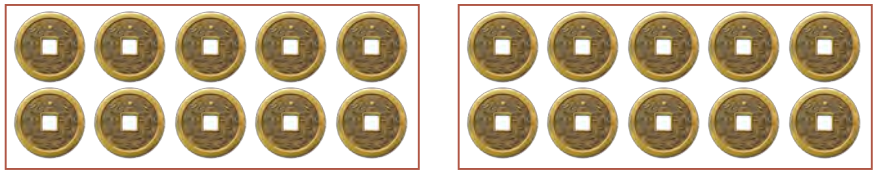
REVIEW & ACTIVITIES

How many Chinese coins are there? If needed, use skip counting or repeated addition to help solve the problem.



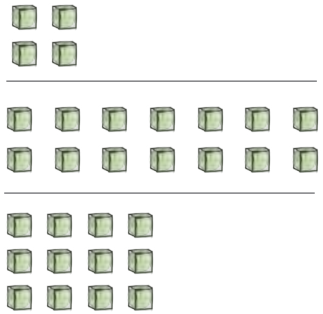
_____ groups of _____ coins = _____ total coins

Draw a line to match the problem with the correct image. If needed, use skip counting or repeated addition to solve the problems.

$2 \times 7 =$ ____

$3 \times 4 =$ ____

$2 \times 2 =$ ____



✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems, which review multiplying by 0, 1, 2, and 10.

1	2	2	0	2	10
× 3	× 8	× 7	× 5	× 9	× 2

Picnic Logic

Bo, Chun, Mom, and Dad went hiking in the mountains. They took some food for a picnic during their hike. Who packed which item for the picnic?

Clue 1: Neither Chun nor Mom packed a fruit.
Clue 2: Chun packed something sweet.
Clue 3: Bo packed something with many seeds.

Fill in the chart with YES or NO in each square.

	Mangoes	Cookies	Dumplings	Pomegranates
Chun				
Bo				
Mom				
Dad				

What did each person pack for the picnic? Write their names below.

Mangoes: _____ Cookies: _____

Dumplings: _____ Pomegranates: _____

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Lesson 8

STORY PROBLEMS WITH ADDITION AND SUBTRACTION

Mental Math

Have the child round the following numbers to the nearest hundred, saying the answer aloud.

674 826 359 250

Supplies
paper clip (keep in math box for later)

Read to the child: Lunar New Year is a time in China when friends and family exchange good wishes and gifts for the coming year. In Chinese culture it is customary to give and receive gifts using two hands, which is a sign of respect and appreciation. Bo, Chun, and their parents are buying gifts to give during Lunar New Year. Let's help them by solving the problems using addition and subtraction. Parent/Teacher Note: If the child struggles with reading, please read the problems in this Lesson Practice aloud.

Story problems will give you information that you need to answer a question or complete a problem. We will use the strategy of circling the information and underlining the questions to help us complete problems.

1. Chun had (\$38.) Then she bought a fan for (\$21.) How much money does she have left?

   First, you find the information that is given and circle it. In this problem, we have circled "\$38" and "\$21." Next, you underline the question that needs to be answered: "How much money does she have left?" In this problem we know how much money Chun had (the total) and how much she spent (part of the total). That means we need to subtract the amount she spent from the total she had to find what she has left.

\$ she had fan
\$38 − \$21 = ☐
\$ she has left

2. Bo bought a lantern for \$10, a kite for \$8, and a drum for \$5. How much money did he spend altogether?

   Start by circling what you know and underlining the question you need to answer. This question wants you to find a total amount. That means you will need to use addition and add all the amounts together.

lantern kite drum
\$10 + \$8 + \$5 = ☐
total \$ spent

Complete the following story problems on your whiteboard. Circle what you know and underline the question. Then decide if you need to add the amounts together to find a total or to subtract the smaller one from the total amount.

1. Their mother, Lee, had \$42. Then she bought a vase for \$23. How much money does she have left?

2. Their father, Zhang, bought a doll for \$17, a lantern for \$10, and a vase for \$23. How much money did he spend altogether?

3. Chun wants to buy another fan for \$21, but she only has \$17. How many more dollars does she need? Use subtraction.

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LESSON PRACTICE

Use the prices for each item to help you complete the problems.

How much more does the vase cost than the doll? Find the difference.

Vase = $23

Doll = $17

?

$23 vase

− $17 doll

difference

Lee wants to buy a fan. She has $15. How many more dollars does she need?

Fan = $21

Lee has $15

?

fan

− $ Lee has

amount she needs

Chun bought a lantern, a kite, and a drum. How much money did she spend altogether?

Money spent altogether?

Lantern = $10 | Kite = $8 | Drum = $5

lantern

kite

+ drum

total $ spent

Bo had $53. He bought a fan for his mother. How much money does he have left?

Money Bo had = $53

Fan = $21

?

$ Bo had

− fan

amount he had left

Circle the correct answer.

1. To find the ***difference***, you need to . . .

ADD | SUBTRACT

2. To find the ***sum***, you need to . . .

ADD | SUBTRACT

REVIEW & ACTIVITIES

E·x·p·a·n·d·e·d FORM

Mount Everest is the highest mountain in China and the world. It rises to **29,032** feet. Write this number in expanded form.

The Yangtze River in China is **3,915** miles long. Write this number in expanded form.

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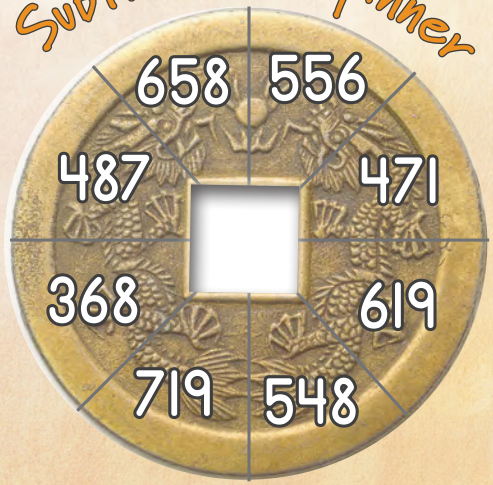
Subtraction Spinner

Create a spinner using a paper clip and a pencil. Put the tip of the pencil through the looped end of the paper clip and set the tip of the pencil in the middle of the coin. Flick the paper clip to spin. Write the numbers you spin in the blanks below and complete the problems. Put the paper clip in the math box when you finish.



762 −

947 −

829 −

770 −

938 −

871 −

✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

3	5	2	0	9	10	1
× 3	× 3	× 6	× 5	× 2	× 5	× 6

Equation Symmetry

Fill in each empty box with a number so that no matter which way you add three numbers (across, down, or diagonally), the sum of the three numbers equals 15. The digits 1–9 may be used only once each to complete this square.

= 15

Fill in each empty box with a number so that no matter which way you add three numbers (across, down, or diagonally), the sum of the three numbers equals the same number. The digits 2–10 may be used only once each to complete this square.

=

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Lesson 9

TWO-STEP STORY PROBLEMS

Skip Counting

Practice these items with the child.

- Count backward by 5s from 100 to 5.
- Count by 100s from 100 to 1,000 (or up to 2,000).

○ Read to the child: One day while walking in the bamboo forest, Bo and Chun found some wildflowers. Chun picked 8 bouquets of purple flowers and 7 bouquets of yellow flowers to sell at the market. Then she decided to give 4 of the bouquets to her friends instead of selling them. How many bouquets did she have left to sell?

This story problem has two parts, which means you'll need to complete two problems to get the final answer. You can use the strategies you learned in the last lesson to help you. Circle what you know and underline the question to answer.

Step A: Find the total number of bouquets gathered:

8 purple bouquets + 7 yellow bouquets = ☐ (total bouquets)

Step B: Subtract the number she plans to give to friends from the total number. (Cross out 4 bouquets in the image above.)

☐ (total bouquets) − 4 (for friends) = ☐

1. Bo spotted 11 birds while he was helping Chun pick flowers. Then 6 flew away. A few minutes later, he spotted 3 new birds. How many birds are there now? Circle what you know and underline the question to answer.

Step A: Subtract the birds that went away. (Cross out 6 brown birds in the image.)

birds − flew away = remaining

11 − 6 = ☐

Step B: Add the 3 new birds to the number remaining to find how many there are now.

remaining + new birds = total now

☐ + 3 = ☐

2. Back at home, Chun helped her father pick fruit from their lychee tree. On one branch of the tree, there were 127 pieces of fruit. Birds ate 19 pieces of fruit. Bugs got into 23 pieces and ruined them. How many good lychee fruits were left on the branch for Chun to pick?

There is more than one way to solve this problem. Let's explore two options. First circle what you know and underline the question.

Option 1

Step A: Find the total number of eaten or ruined fruit.

birds ate + bugs got = total ruined

___ + ___ = ☐

Step B: Subtract the number of ruined fruit from the total amount of fruit that grew.

total fruit − total ruined = good fruit

___ − ☐ = ☐

Option 2

On a whiteboard, have the child figure out another way to solve the problem. [Example—Step A: Subtract the 19 from 127; Step B: Subtract 23 more]

Then have the child solve the next problem using one option from problem #2:

3. Bo's tomato plant produced 87 tomatoes. The birds ate 13 tomatoes and the bugs ruined 26 tomatoes. How many good tomatoes were left?

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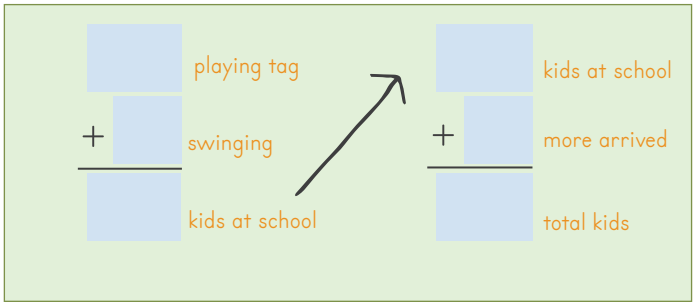
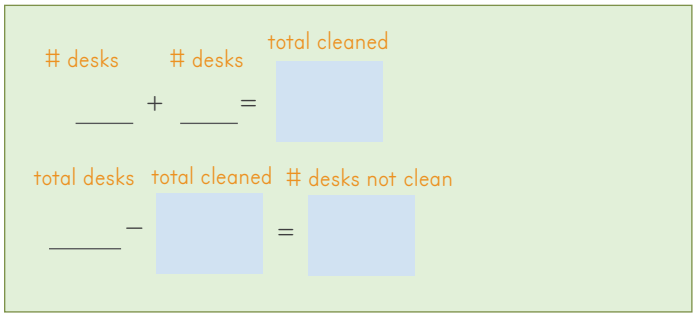
LESSON PRACTICE

Complete the problems.

Chun takes the flowers to school to share with friends. When she arrives, 12 children are playing tag and 9 children are swinging. Then 7 more children arrive at school. How many children does she see at school now?



In China all the children help clean the school. There are 96 desks in their school. Chun and her friends cleaned 24 desks. Bo and his friends cleaned 31 desks. How many more desks need to be cleaned?



How do children in China get to school? Some walk while others ride bicycles. In large cities older children can ride public transportation. School buses are not available to all children.

In Bo and Chun's town, 58 children walked to school and 61 children rode bicycles. How many went to school?

$$\begin{array}{r} 58 \\ +\ 61 \\ \hline \end{array}$$

Of the 61 bicycles, 14 were green and 25 were red. The rest of the bicycles were blue. How many blue bicycles were there?

Take the 10-sided dice from the math box. Roll the dice and fill in the blanks for the following problems. Then complete the problems. If you roll a 10, write 0 in the box.

$$\begin{array}{r} 36\square \\ -\ 22\square \\ \hline \end{array} \qquad \begin{array}{r} 53 \\ +\ \square 7 \\ \hline \end{array} \qquad \begin{array}{r} 6\square \\ +25 \\ \hline \end{array}$$

There are 32 children in Chun's class. 12 ate dumplings and steamed buns for lunch, and 16 ate noodles and veggies. The rest ate boiled chicken and rice. How many ate boiled chicken and rice?

Did you know that in Bo and Chun's language (Mandarin Chinese), people sometimes write numbers with symbols? These symbols can be used for 1, 2, and 3:

"Ye" "Er" "Sahn"

Write the Chinese symbols in the box.

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REVIEW & ACTIVITIES

Circle the correct answers.

1. Round 2,415 to the nearest **hundred**.

   2,400 2,500

2. Round 4,756 to the nearest **ten**.

   4,750 4,760

Circle all the even numbers.

989 378

408 59

715 596

Write this number in expanded form.

32,053 _____

For each addition problem, write the number shown in expanded form in the green box and then add. Remember to use zeros as placeholders and to include commas in the answers.

3,000 + 600 + 8

,
+ 4,238

5,000 + 70 + 2

,
+ 3,437

✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

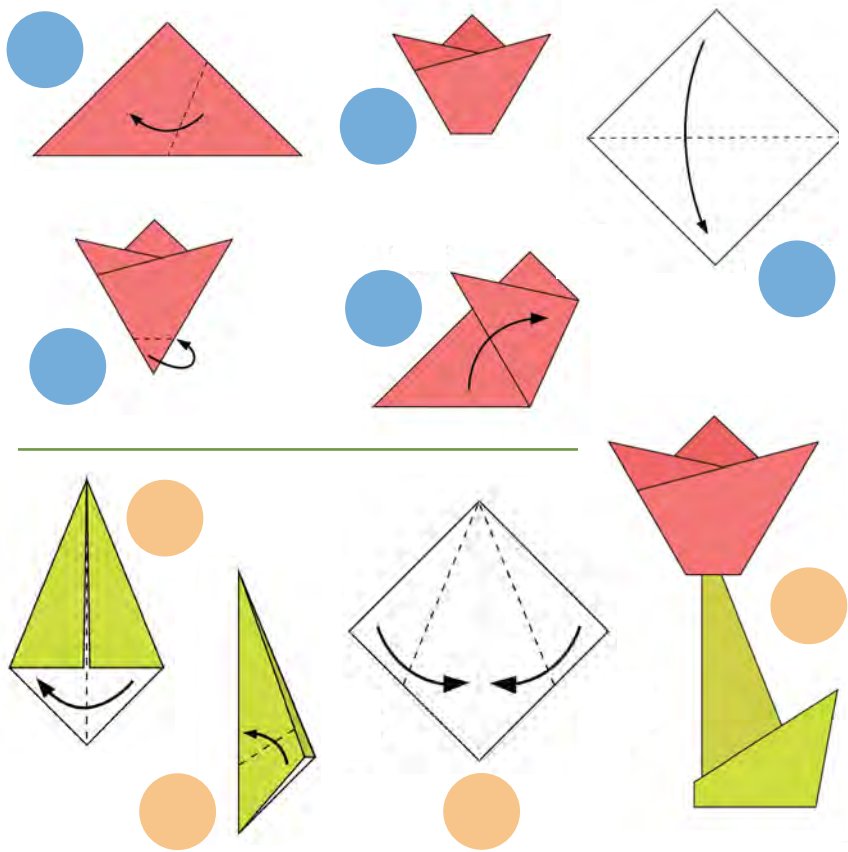
3 × 3	6 × 6	5 × 3	8 × 4	8 × 8	3 × 4

Write the answers. Remember multiplying by 2 is like doubles addition.

2 × 2	2 × 4	2 × 3	2 × 6	2 × 7	2 × 9	2 × 8	2 × 5

Origami Logic

Use logic to figure out the order of the steps to make each piece of origami. Then label the steps in order from 1 to 5 or 1 to 4 in the blank circles. Optionally, follow the steps to create your own origami flower. You will need two square pieces of paper to make this project.



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Lesson 10

MULTIPLICATION: PART 4

Supplies
paper clip (keep in math box for later)

Mental Math

Read to the child: To add 9 to any number, first add 10 and then subtract 1. Mentally complete the problems in purple. Say the answers aloud.

Example: 25 + 9 (25 + 10 = 35; 35 − 1 = 34)

63 + 9	45 + 9	27 + 9	54 + 9	36 + 9

○ Read to the child: Bo loves animals. At the library he checked out a book about Asian elephants and read some interesting facts. For example, he learned that Asian elephants love marula fruit. He also learned that they can eat up to 300 pounds of food in a single day. If 4 elephants ate 2 marula fruits each, how could you find the total number of marulas the elephants ate using addition?

Write an addition problem on the whiteboard for this problem and complete it.

We call this method repeated addition. Do you remember another way to solve repeated addition problems with equal groups? [multiplication] In a multiplication problem, the numbers you multiply are called ***factors***. The first factor is often the number of groups, and the second factor is usually the number of items in each group. The answer is called the ***product***.

Fill in the blank boxes with the correct numbers to solve this story problem. Four elephants each ate 2 marulas. How many total fruits did they eat?

# of elephants		# of fruits per elephant		total fruits
	×		=	
Factor		Factor		Product

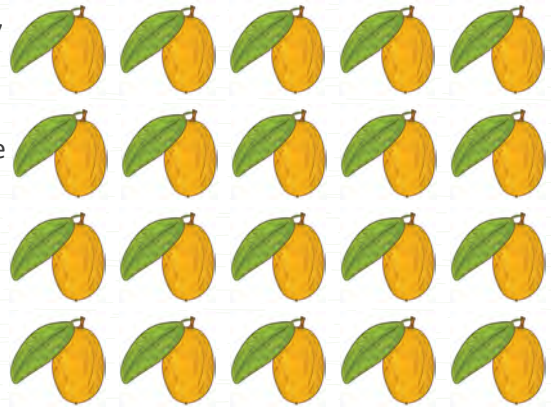
○ Read to the child: Let's try another one! Fill in the blank boxes with the correct numbers to solve this story problem. Elephants aren't the only ones who love marula fruit. At dinner all 4 members of the family (Bo, Chun, Mom, and Dad) ate 4 marula fruits each. How many total fruits did they eat? Have the child point to the two factors and the product and name them.

# of people		# of fruits per person		total fruits
	×		=	

Let's try another problem with pictures of marula fruit. Using the fruit below, circle 4 groups with 5 fruits in each group using a red colored pencil. Then write a multiplication problem and solve it.

# of groups		# of fruits per group		total fruits
	×		=	

The ***commutative property*** of multiplication tells us that changing the order of the factors does not change the product. Factors can be multiplied in any order and will always have the same product. What would the total number of fruits be if you circled 5 groups with 4 fruits in each one in the image above? Have the child circle new groups using a blue colored pencil. Now write a multiplication problem showing 5 groups of 4 fruits and solve it. Did you get the same answer as before?



# of groups		# of fruits per group		total fruits
	×		=	

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ELEPHANT Multiplication

Bo read in his book that Asian elephants are some of the earth's most intelligent animals. They are so skilled with their trunks that they use them to tear down trees or pick a single blade of grass. Let's play a matching game using pictures of Asian elephants.

Using your pencil and a paper clip, make a spinner and place it on the circle between the elephants. Take turns spinning the paper clip and finding a multiplication problem that matches the image. Read the problem aloud and solve it to win that problem. If the answer is incorrect, the problem can be won by the other player if he or she gives the correct answer. Try to collect a problem in all three colors (purple, blue, and green). For additional practice, keep spinning and matching until all problems have been solved.

2	×	4	=			
elephants		legs per elephant		total legs		
3	×	1	=			
elephants		trunk per elephant		total trunks		
1	×	2	=			
elephant		ears per elephant		total ears		
4	×	1	=			
elephants		trunk per elephant		total trunks		
4	×	4	=			
elephants		legs per elephant		total legs		
4	×	2	=			
elephant		ears per elephant		total ears		
1	×	4	=			
elephants		legs per elephant		total legs		
3	×	2	=			
elephant		ears per elephant		total ears		
1	×	1	=			
elephants		trunk per elephant		total trunks		
3	×	4	=			
elephants		legs per elephant		total legs		
2	×	1	=			
elephants		trunk per elephant		total trunks		
2	×	2	=			
elephant		ears per elephant		total ears		

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LESSON PRACTICE

1. Suppose you are selling flowers in bunches of 5. How many total flowers will you sell if you sell 4 bunches? (Hint: You can skip count by 5s to find the product, which is the answer.)

# of bunches × # of flowers in each bunch = total flowers

2. Bo and Chun sell bags with 4 marula fruits each. If they sold 6 bags, how many total pieces of marula fruit would they sell? (Hint: Draw 4 dots on each bag, and then solve the problem.)

3. Circle 4 groups of 7 flowers, and then write a multiplication problem and solve it.

4. Bo and Chun are making bamboo triangles. Each triangle uses 3 bamboo sticks. How many sticks will they use to make 9 triangles?

Solve the problems.

3 × 5 = ____

2 × 8 = ____

4 × 3 = ____

2 × 6 = ____

5 × 4 = ____

Roll the 10-sided dice. Write the number in the blank and solve the problem.

1 × ☐ = ____

2 × ☐ = ____

0 × ☐ = ____

2 × ☐ = ____

10 × ☐ = ____

10 × ☐ = ____

If one lantern costs $5, how much would 4 lanterns cost? Write a multiplication problem and complete it.

If one fan costs $4, how much would 3 fans cost? Write a multiplication problem and complete it.

Hibiscus are edible Chinese flowers. Each flower has 5 petals. How many petals are there altogether in 6 flowers?

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REVIEW & ACTIVITIES

Complete the problems to find the answer to the riddle. Riddles are often written on lanterns during the lantern festivals.

What building has the most stories in the world?

375 + 168	389 + 253	250 + 361	168 + 436
A	B	A	L
611 - 108	758 - 139	243 - 126	572 - 346
I	Y	R	R

Answer: ____ ____ ____ ____ ____ ____ ____ ____

543 604 503 642 117 611 226 619

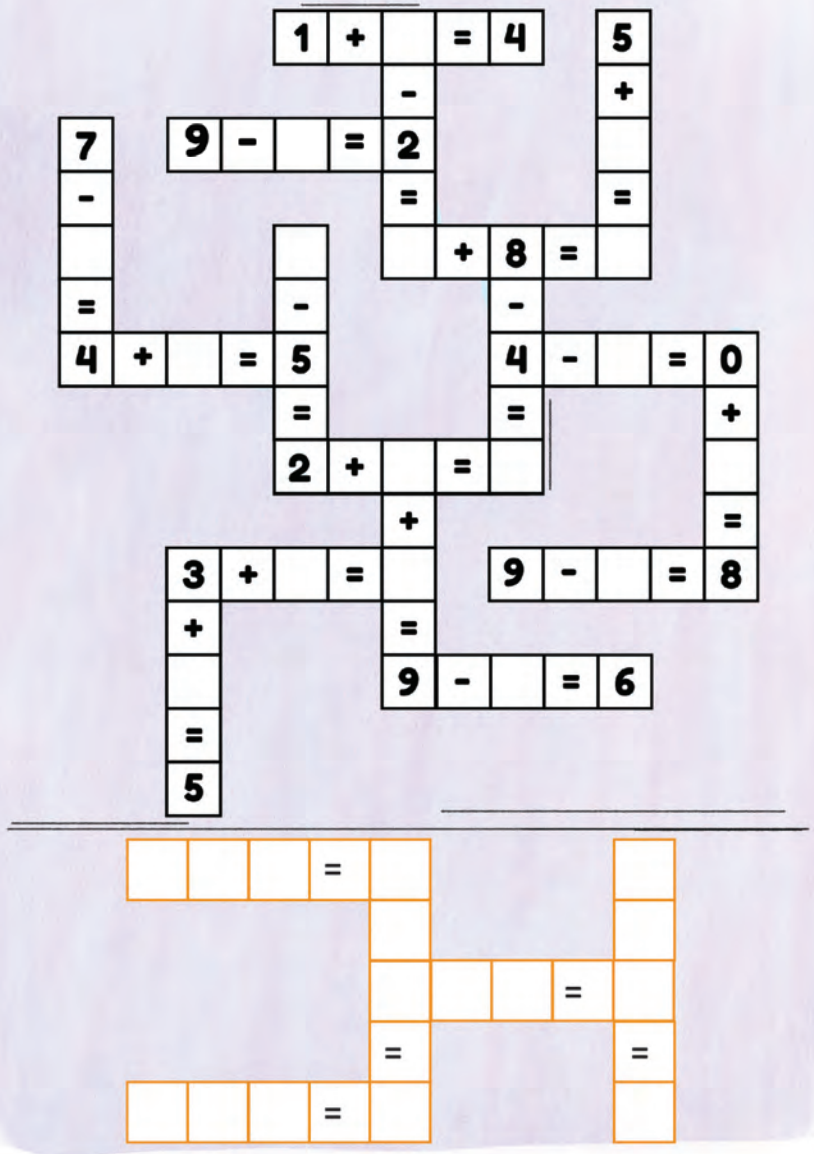
✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

5 × 5	9 × 9	6 × 4	3 × 3	6 × 6	5 × 3

Crossword Creation

Fill in the math crossword puzzle. Then create your own math crossword puzzle in the blank orange boxes and solve the problems.



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Lesson 11

TELLING TIME TO THE NEAREST MINUTE

Supplies: stopwatch

Skip Counting

Have the child practice these items.

- Skip count by 5s from 5 to 60.
- Skip count by 50s from 50 to 500.

○ Read to the child: We will begin this lesson by doing a quick exercise. When I say, "Go!" I will start the stopwatch. We'll see how long it takes you to do 10 jumping jacks. Ready? Go! Show the child the time and have him or her write the number of seconds below.

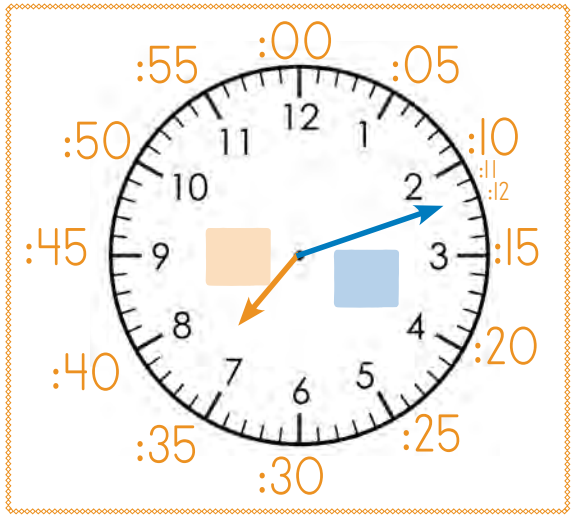
It took _____ seconds to do 10 jumping jacks.

Some activities, such as jumping jacks, take only seconds, while others take minutes, and some even take hours! Look at the list below and circle the most reasonable amount of time it takes to do each activity.

1. Open and close my mouth
   seconds **minutes** **hours**
2. Dance to a song
   seconds **minutes** **hours**
3. Fly on an airplane to China from the USA
   seconds **minutes** **hours**
4. Brush my teeth
   seconds **minutes** **hours**

○ Point to the clock: On an analog clock like this, hours and minutes are indicated by hands that point to the numbers. There is always a long hand and a short hand. What does the short hand tell us? Have the child write an "H" for hours next to the short hand. What does the long hand tell us? Have the child write an "M" for minutes next to the long minute hand.

Notice that the hour hand is pointing between the 7 and 8. This means that the time is past 7 o'clock but not yet 8 o'clock. Have the child write a "7" on the orange line below. We always write the hours on the left side of the colon when writing out time.



Now let's look at the minute hand. Remember that each number on the clock face represents a multiple of 5 minutes. Point to each number, beginning with 1, and skip count by 5s all the way around the clock. How many minutes are in an hour? Each tick mark going around the clock represents one minute.

_____ : _____

This minute hand is pointing to the second tick mark past the 2. Since the 2 represents 10 minutes, the first tick mark past the 2 represents 11 minutes, and the second tick mark represents 12 minutes. Have the child write "12" on the blue line above. Minutes are always written on the right side of the colon. The time shown on this clock is seven twelve.

○ Point to the image of food. On special occasions, Bo and Chun's family enjoys eating the tiny, bite-size breakfast dishes called *dim sum* at the village restaurant. Bo always looks forward to savoring the small tasty dishes.

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When they arrived at the restaurant early this morning, Bo checked his watch. What time was it? Find the hour first, and then count by 5s until you reach the 10. Then count on by 1s until reaching the minute hand. Say the time aloud and write it below.

_____ : _____ AM

What time did Bo's family leave the restaurant?

_____ : _____ AM

One day Bo got a new watch and checked it each time he started a new task. Let's see if we can figure out in what order he did these things. Set out the AM and PM clocks from the Lesson 11 page of the Appendix. Help the child put the clocks in order from earliest time (starting with the AM clocks) to latest time. Have the child say the time on each clock aloud.

LESSON PRACTICE

Do the following activities take seconds, minutes, or hours to complete? Circle the most reasonable unit of time.

- Sleep through the night
  seconds **minutes** **hours**
- Smile at someone
  seconds **minutes** **hours**
- Run a mile
  seconds **minutes** **hours**
- Put on a shoe
  seconds **minutes** **hours**
- Say, "Hello!"
  seconds **minutes** **hours**
- Sing the ABC song
  seconds **minutes** **hours**
- Take a bath
  seconds **minutes** **hours**
- Give someone a hug
  seconds **minutes** **hours**
- Fly to another continent
  seconds **minutes** **hours**

Fill in the blank to complete the conversion.

1 hour = _____ minutes

Write the time shown on each clock.

_____ : _____

_____ : _____

_____ : _____

_____ : _____

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REVIEW & ACTIVITIES

Circle the correct answers.

- Which month has 28 days during non-leap years?

April | June | February | November

- What is the 5th month of the year?

April | June | March | May

- Which day comes after Thursday?

Wednesday | Friday | Saturday

Circle the correct answers.

1. Round 416 to the nearest **ten**.

   410 420

2. Round 738 to the nearest **hundred**.

   700 800

3. Round 244 to the nearest **hundred**.

   200 300

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

3 × 5	3 × 4	6 × 4	4 × 8	9 × 9	6 × 6

Complete the problems to find the answer to the riddle.

What has hands but cannot clap?

475 + 169	291 + 457	384 + 563	743 - 526
O	A	L	K

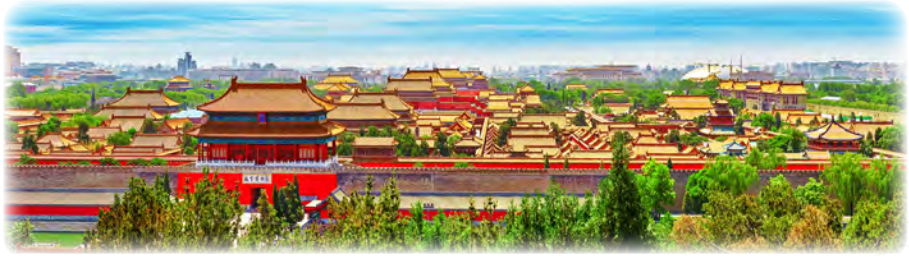
819 - 648
C

Answer:

748	171	947	644	171	217	

Complete this two-step story problem. Write the steps in the box.

There were 52 adults and 314 children who attended the field trip to the Forbidden City in Beijing, China (home of the largest palace in the world). About how many more children attended than adults? (Hint: First round each number to the nearest TEN, and then subtract.)



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Lesson 12

MEASURING AND ESTIMATING USING INCHES AND CENTIMETERS

Math Facts

Quiz the child on the math facts.

3 × 3 | 6 × 6 | 5 × 3 | 8 × 4 | 8 × 8 | 3 × 4 | 5 × 5

○ Take the mini measuring tape from the math box. Read to the child: Bo and Chun's grandfather is a *penjing* [pen–JEENG] master, which is the art of designing miniature trees. One day he taught Bo and Chun all about how he trims and prunes penjing trees so that they grow in certain shapes. He showed them how he puts them in shallow pots so their roots cannot grow large, and thus the trees remain miniature.

Their grandfather asked which penjing tree is their favorite. Bo's favorite tree is about 6 inches tall. Chun's favorite tree is about 13 centimeters tall. You will use the measuring tape to identify which trees are Bo's and Chun's favorites. One side of the tape is labeled in inches, and the other is labeled in centimeters. Measure the height of each penjing tree to the nearest inch and also to the nearest centimeter. Line up the end of the tape so the 0 is on the blue line. Write the answers in the boxes using the abbreviated labels. Here is how we write inches and centimeters and their abbreviated forms:

4 inches → 4" or 4 in

4 centimeters → 4 cm

Nearest Inch: _____

Nearest Centimeter: _____

Favorite Tree of: _____

Nearest Inch: _____

Nearest Centimeter: _____

Favorite Tree of: _____

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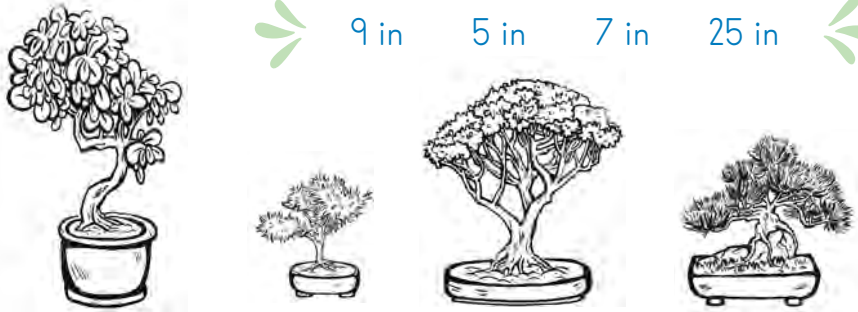
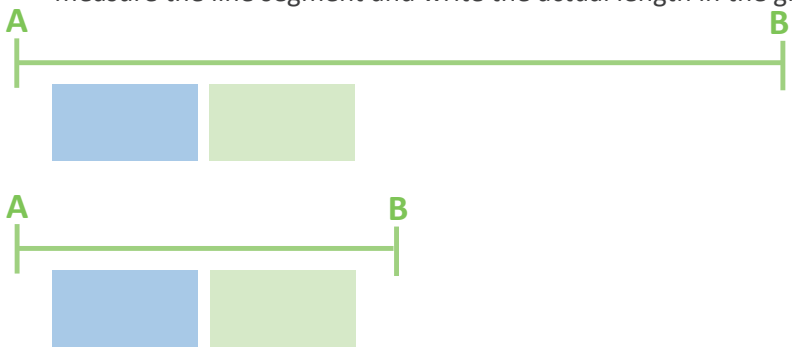
○ Read to the child: Imagine that the penjing trees below are the heights given in blue. Use logic and estimation to write the height of each penjing tree in the green boxes. Hint: Try ordering the values from least to greatest.

9 in 5 in 7 in 25 in



○ For each line segment, estimate or guess the length of the line in inches. Write your estimate in the blue box. Then use the measuring tape to measure the line segment and write the actual length in the green box.

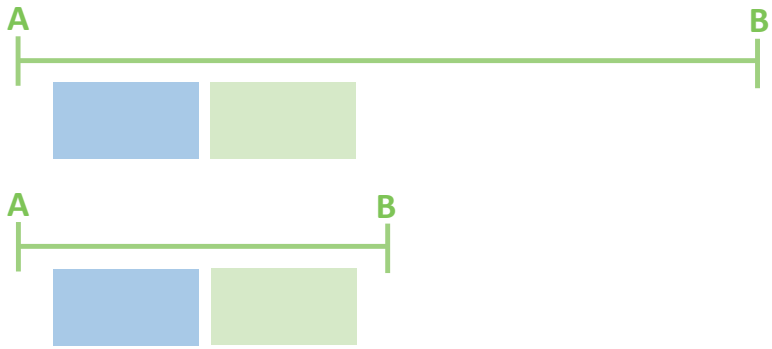


○ Look at your measuring tape as I ask these questions, and then answer aloud.

- Is a regular-sized loaf of bread more likely to be 5 inches or 15 inches long?
- Is a regular-sized fork more likely to be 18 centimeters or 5 centimeters long?
- Is a strawberry more likely to be 1 inch or 10 inches long?
- Is an apple more likely to be 9 centimeters or 20 centimeters across?

LESSON PRACTICE

For each line segment, estimate the length of the line in **centimeters** and write the estimate in the blue box. Then use the measuring tape to measure the line segment and write the actual length in the green box.



Use the measuring tape to draw AB line segments that are the length given. Write the B at the end of the line segment.

8 cm A

4 in A

For each item, circle the more reasonable measurement in inches or centimeters for the height of the object.

Chow Chow Dog

20 in | 2 in

Soy Sauce Bottle

3 cm | 15 cm

Fortune Cookie

3 cm | 8 in

Chinese Lantern

2 in | 25 cm

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REVIEW & ACTIVITIES

Write the time shown on each clock.

___ : ___

___ : ___

Draw hands on the clocks to show the times.

7 : 34

12 : 59

✧ Multiplication Fact Practice ✧

Put a check mark in the green box after you have practiced the Set A multiplication facts for 10 minutes or more. Then complete the problems in this section.

5	9	6	3	6	5
× 5	× 9	× 4	× 3	× 6	× 3

Write the number on the chart. Remember to include the comma.

Twenty-four thousand, seventy-two

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Ten thousand, six hundred nine

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Sixty thousand, five hundred eighty-seven

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Complete the two-step story problem.

Bo's grandfather sold 2 penjing trees for $55 each. He then spent =$20 of the money on a fan for his wife. How much money does he have left?

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Lesson 13

MEASURING LENGTH IN INCHES, FEET, YARDS, AND MILES

Supplies
tape

Mental Math

Read to the child: If you can add 9 + 5, you can also add 90 + 50 and more. Look at the examples, then complete the purple problems in your mind and say the answers aloud.

Example: 9 + 5 = 14 | 90 + 50 = 140

900 + 500 = 1,400 | 9,000 + 5,000 = 14,000

4 + 7	40 + 70	400 + 700	4,000 + 7,000

○ Punch out the pieces on the Lesson 13 page of the Appendix. Tape the ends of the ruler together to make a yardstick. Take the measuring tape from the math box. Read to the child: The Great Wall of China, one of the most awe-inspiring sights in the country, attracts millions of visitors every year. Some sections of the wall are nearly 2,300 years old! When Bo and Chun visited the Great Wall during their summer vacation, they learned some interesting facts about it. Listen closely for the different units of measurement. The Wall is 13,170 **miles** long! The average height of the Wall is 8 **yards** (or 24 **feet**), and an average brick in the wall measures 15 **inches** long. What were some of the measurement units you just heard? [miles, yards, feet, inches]

○ Read to the child: All of these measurements are part of a system used in the United States called the US customary system. How can you know which measurement is best to use? [It depends on the size of what is being measured.] You have measured items using inches. Inches are very small, and they are best for measuring very short lengths. What are some things you could measure in inches? [Examples: paper, pencil, etc.]

Measure the length of this math book in inches: _____ in

Measure the length of your pencil in inches: _____ in

Look at your measuring tape. How many inches are in 1 foot? What are some things you could measure using feet? [Examples: height of a door, length of a table, etc.] The abbreviation for feet is ft.

Measure the width of a door in feet: _____ ft

○ Show the child the yardstick. This is called a yardstick. How many feet can you count in this yardstick? What could you measure using yards? [Examples: the length of a playground, the length of a football field, etc.] The abbreviation for yards is yd.

Measure the length of this room in yards: _____ yd

Help the child measure 1 yard and mark the spot. Then move the yardstick and line up the zero end with the 1-yard mark to continue measuring.

The largest unit of measurement for length in the US customary system is a mile, abbreviated with mi, and is the same as 5,280 feet. It would take about 20 minutes for you to walk a mile. We use miles to measure very long distances, such as the distance from one city to another. Let's practice matching items to the most reasonable unit of measurement.

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Take the 6-sided dice and game pieces from the math box. Read the instructions to the child: Take turns rolling the dice and moving forward that number of spaces. Draw a line to match the item in the space where you land with the most reasonable unit of measurement for measuring its length or height. For orange tag items, choose between feet and miles; for purple tag items, choose between yards and inches. Continue moving clockwise around the game board. The first player to find items matching to all four unit labels is the winner. If you land on a space that has already been matched to a unit label, then roll again. Optionally, continue playing until all items have been matched.

START

state

piano

bike race

tree

pillow

shoes

bookcase

Measurement Match

pool

FEET

YARDS

hiking trail

MILES

INCHES

crayon

table

road trip

window

playground

book

sidewalk

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LESSON PRACTICE

Circle the unit that would work best for measuring each object.

The height of a water tower
yards | inches

The length of a spoon
inches | feet

The height of a stop sign
miles | feet

The length of a colored pencil
inches | yards

The length around the neighborhood
yards | inches

The height of a tall tree
miles | feet | inches

The distance across the Atlantic Ocean
inches | miles | yards

The length of a goldfish
feet | inches | yards

The length of your thumb
feet | yards | inches

The length of the Great Wall of China
feet | yards | miles

Choose the best unit to measure each item and write it in the blank.

inches | feet | yards | miles

1. The height of a door is about 7 _____ .
2. The length of a pencil is about 7 _____ .
3. The height of a two-story house is about 7 _____ .
4. The distance of a hike to the top of a mountain is about 7 _____ .

Measure the following items using the yardstick. Use the best unit for the item.

Your foot _____

A table _____

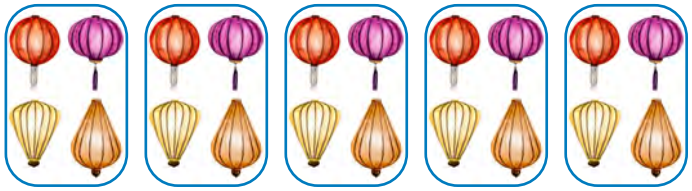
Draw a line to connect the measurement to its abbreviation.

Inches | Feet | Yards | Miles

yd ft mi in

REVIEW & ACTIVITIES

Write a multiplication problem for the groups of lanterns and complete it.



_____ × _____ = _____

Write the numerals shown in expanded form in the green box and complete the addition or subtraction problems.

8,000 + 300 + 3

_____,
+ 1,908

2,000 + 60 + 4

_____,
+ 5,791

5,000 + 400 + 8

_____,
+ 4,352

9,000 + 70 + 1

_____,
+ 6,284

Circle the lantern that is to the LEFT of the purple one. Cross out the lantern that is to the RIGHT of the red one.

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Draw hands on the clocks to match the time shown.

6 : 26

8 : 04

3 : 47

Circle the most reasonable measurement for the line segments.

A ——— B 2 in | 20 cm

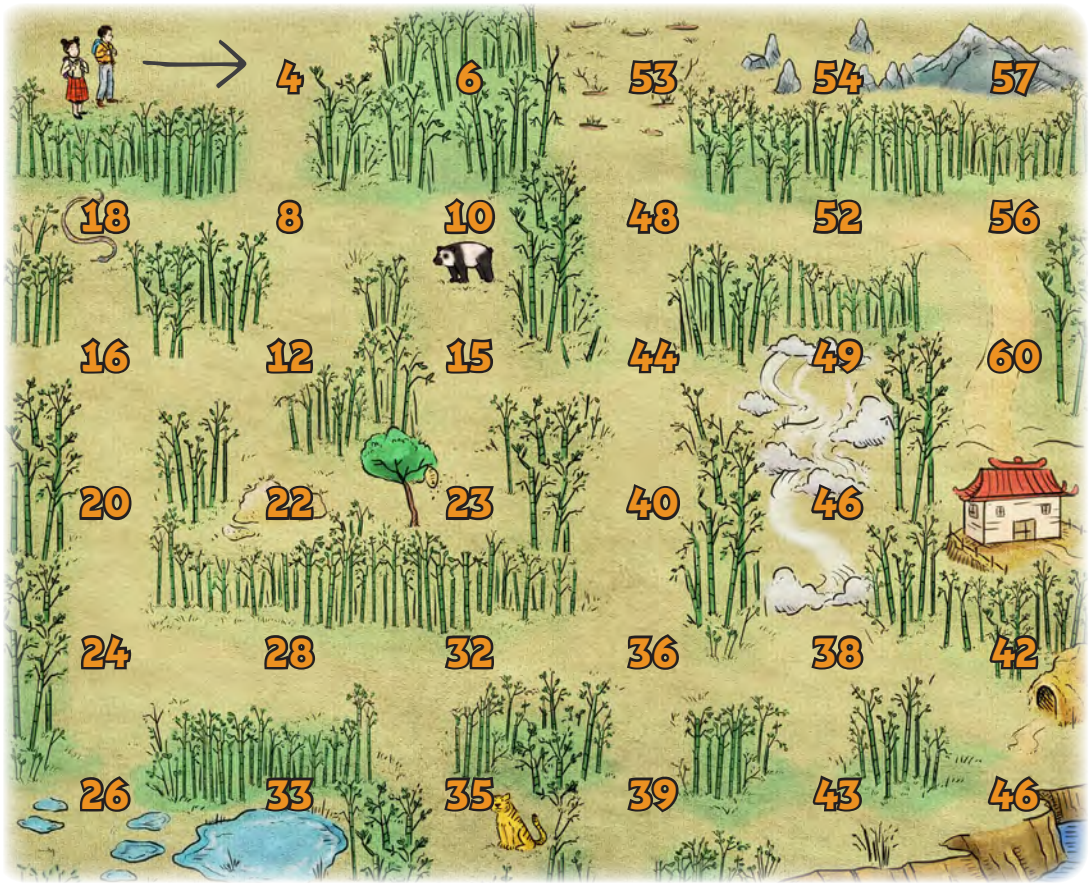
A ——— B 9 cm | 9 mm | 9 m

Write the answers. Remember 10s times tables are like 1s, but shift the answer to the tens place and put a 0 in the ones place.

10 × 2	10 × 4	10 × 3	10 × 6	10 × 7	10 × 9	10 × 8	10 × 5

Skip Counting Maze

Skip count by 4s to get Bo and Chun back home.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

4 × 6	3 × 5	4 × 3	4 × 8	3 × 3	6 × 6

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Lesson 14

MULTIPLYING BY 100, 1,000, AND 10,000

Mental Math

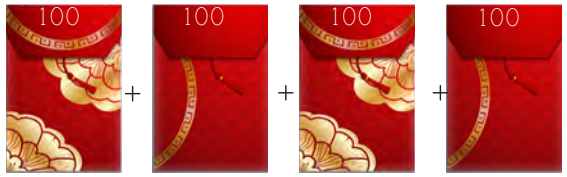
Read to the child: To add 9 to any number, first add 10 and then subtract 1. Complete the purple problems in your mind. Say the answers aloud.

Example: 25 + 9 (25 + 10 = 35; 35 − 1 = 34)

63 + 9	45 + 9	27 + 9	54 + 9	72 + 9

○ Read to the child: Every Lunar New Year, families give out red envelopes, called *hóngbāo* [hong–BAW], filled with money to the younger generations. The red color of the envelope symbolizes good wishes for the new year. In preparation for this celebration, factories in China produce red envelopes in quantities of hundreds, thousands, and ten thousands. We can use skip counting or multiplication to complete the following problems.

Let's suppose a factory received an order for 4 boxes of 100 red envelopes each. How many total envelopes were in the order? Add the amount in each box together to find the total.

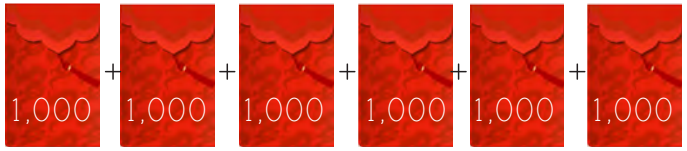


+ + + = _____ red envelopes

When we have equal groups, we can also multiply. This is the same as multiplying 4 × 100. Multiply 4 times 1, and then write the 2 zeros at the end.

4 boxes × 100 envelopes per box = _____ envelopes

Let's suppose this time the factory received an order for 6 boxes of 1,000 red envelopes each. How many total envelopes were in the order?



+ + + + + = _____ red envelopes

This is the same as multiplying 6 × 1,000. Multiply 6 times 1, and then write the 3 zeros at the end.

6 boxes × 1,000 envelopes per box = _____ envelopes

Let's suppose this time the factory received an order for 3 boxes of 10,000 red envelopes each. How many total envelopes were in the order?

+ + = _____ red envelopes

This is the same as multiplying 3 × 10,000. Multiply 3 times 1, and then write the 4 zeros at the end.

3 boxes × 10,000 envelopes per box = _____ envelopes

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Did you notice a pattern? Pause for response. When multiplying by 100, you wrote 2 zeros behind the number of groups. When multiplying by 1,000, you wrote 3 zeros behind the number of groups. When multiplying by 10,000, you wrote 4 zeros behind the number of groups. Using this strategy, fill in the boxes below with the products.

5 × 100 = ____

7 × 1,000 = ____

8 × 10,000 = ____

LESSON PRACTICE

For Lunar New Year, Bo received 3 red envelopes with 100 ***renminbi*** (Chinese money) in each one. How much money did he receive? Write a problem and complete it to find the answer.

Chun received 5 red envelopes with 100 renminbi in each one. How much money did she receive? Write a problem and complete it to find the answer.

Complete the problems.

3 × 1,000 = ____

6 × 1,000 = ____

8 × 10,000 = ____

9 × 10,000 = ____

4 × 100 = ____

8 × 100 = ____

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REVIEW & ACTIVITIES

Lost Digits

Fill in the blanks for the addition and subtraction problems with the numbers that make the problem and answer accurate. Hint: Start on the right in the ones place and work to the left.

$$\begin{array}{r} \_,502 \\ +\ 1,24\_ \\ \hline 8\_49 \end{array} \qquad \begin{array}{r} 5,\_15 \\ +\ \_,87\_ \\ \hline 8,4\_6 \end{array}$$

$$\begin{array}{r} 87 \\ -\ 5\_ \\ \hline \_3 \end{array} \qquad \begin{array}{r} 7\_6 \\ -\ 43 \\ \hline 71\_ \end{array} \qquad \begin{array}{r} 64\_ \\ -\ 3\_1 \\ \hline \_26 \end{array}$$

Complete the skip counting patterns.

25, _____, 75, _____, _____, 150, _____, _____

6, _____, 18, _____, _____, 36, _____, _____

Take the 10-sided dice from the math box and roll it. Write a number in each blank. Then complete the problems. Remember 10s times tables are like 1s, but shift the answer to the tens place and put a 0 in the ones place.

$$\begin{array}{r} 10 \\ \times\ \_ \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times\ \_ \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times\ \_ \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times\ \_ \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times\ \_ \\ \hline \end{array}$$

Fact Family Search

Complete the problems, and then find and circle the fact families in the puzzle. Write a + and = sign in the correct place. The first one is done for you.

4	3	7	8	14
2	5 +	6	= 11	7
4	6	13	5	8
5	3	4	9	7
9	8	17	8	15

$$\begin{array}{r} 5 \\ +\ 6 \\ \hline 11 \end{array} \qquad \begin{array}{r} 8 \\ +\ 7 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 7 \\ +\ 6 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 4 \\ +\ 3 \\ \hline \end{array}$$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more by doing *Musical Multiplication*, flash cards, or multiplication practice sheets. Then complete the problems in this section.

$$\begin{array}{r} 3 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 4 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 8 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ \times\ 5 \\ \hline \end{array}$$

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Lesson 15

INTRODUCTION TO METRIC UNITS

Calendar Review

Optional: Watch the videos "Days of the Week Song" and "Months of the Year Song" at The Good and the Beautiful Kids YouTube channel for review.

- Which month comes after August? Which month comes before January?
- Which day is 2 days after Monday? Which day comes before Sunday?

Read to the child: You have learned how to measure length using the US customary system, which uses units such as inches, feet, yards, and miles. Today, you will learn how to measure length using the metric system. Metric units are used in most countries around the world.

Look at the four metric units used to measure length. Allow the child time to observe. Which unit is the smallest and which is the largest? There are abbreviations for each unit. Write "mm" next to millimeter, "cm" next to centimeter, "m" next to meter, and "km" next to kilometer.

1 centimeter

1 millimeter

1 meter

1 kilometer

The Chinese people are known for weaving beautiful silk fabric, made from the threads of silkworm cocoons. Let's suppose Lee wants to buy enough fabric to make another traditional Chinese *qípáo* [tsee–pow] gown. If she tells the seller, "I would like to purchase 5 of the pink fabric," the seller would ask her to be more specific. Circle the best measurement.

5 mm | 5 cm | 5 m | 5 km

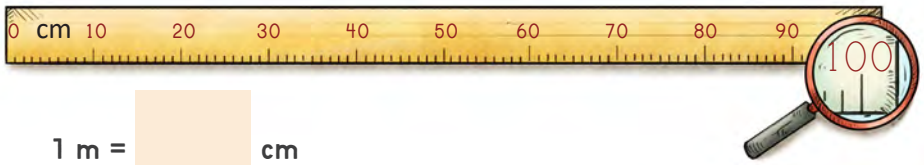
Look at the ruler below. Notice that some of the lines are longer than others. The longer lines represent centimeters while the shorter lines represent millimeters. Count the number of millimeters that are between 0 and 1. Fill in the blank with the correct conversion.

1 cm = ____ mm

Later, Lee will mark where to cut the fabric using a colored pencil. How long is the pencil in centimeters and millimeters? Count by 10s to find the number of millimeters, or multiply the number of centimeters by 10.

____ cm = ____ mm

This is a picture of a meterstick. A real one is a little longer than a yardstick, like the one you used in Lesson 13. This ruler also shows centimeters and millimeters. Fill in the blank with the number of centimeters in one meter. The prefix ***centi-*** means hundred, so the word centimeter means "a hundredth of a meter."



1 m = ____ cm

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How tall is the shelf of fabrics in meters and centimeters? (Use the metersticks to measure.)

metersticks

_____ m =

_____ cm

The prefix ***kilo-*** means thousand, so the word kilometer means "a thousand meters." How many meters are in one kilometer?

1 km = _____ m

Kilometers are best for measuring very long distances. What are some distances you could measure using kilometers? (Examples: the distance an airplane flies, the length of a river, etc.) If the trail that Bo and Chun take through the bamboo forest is 3 kilometers long, how many meters is that? (Hint: Skip count by 1,000s or multiply 3 by 1,000.)

3 km = _____ m

LESSON PRACTICE

Write the abbreviation for each unit.

Millimeters _____ Centimeters _____

Meters _____ Kilometers _____

Draw a line to the most reasonable unit for measuring the length of each item.

mm | cm | m | km

Circle the unit that is the most reasonable measurement for each item.

- The distance across a tennis ball

  8 mm | 8 cm | 8 m

- The length of a piece of popcorn

  25 mm | 25 cm | 25 m

- The width of a forest

  16 cm | 16 m | 16 km

- The height of a tall tree

  7 cm | 7 m | 7 km

- The depth of a swimming pool

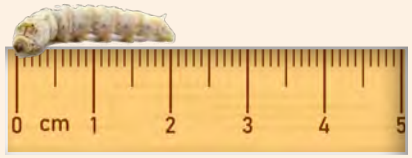
  3 mm | 3 cm | 3 m

- The distance across (diameter of) a penny

  20 mm | 20 cm | 20 m

The silk fabric for Lee's new dress was made by many tiny silkworms. A silkworm's cocoon is made from a single thread between 300 and 900 meters long. Each thread is very thin so it takes between 2,000 and 5,000 cocoons to make one pound of silk fabric.

Write the measurements for the silk worm and the piece of fabric.



_____ cm _____ mm

metersticks

_____ m _____ cm

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REVIEW & ACTIVITIES

Spin & Complete

Take the paper clip from the math box and create a spinner. Put the tip of your pencil through the looped end of the paper clip and set the tip of the pencil in the middle of the coin. Flick the paper clip to spin. Write the numbers you spin in the blanks below and complete the problems.

☐ × 2	☐ × 2	☐ × 2	☐ × 2	☐ × 2	☐ × 2

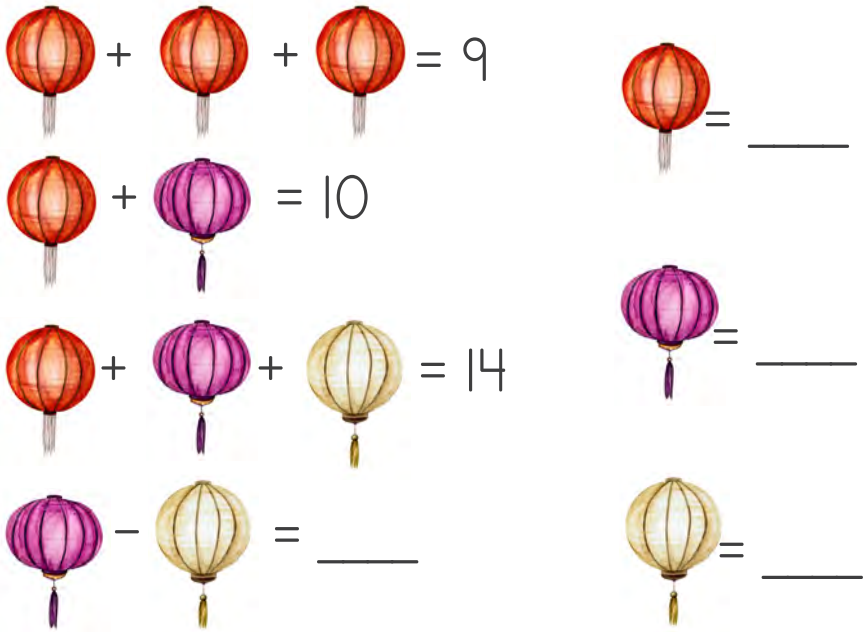
Complete the skip counting pattern.

18, 24, ____, ____, 42, ____, 54, ____, ____

For each digital clock, draw hands on the analog clock to show the same time.

Lantern Logic: Part 2

What number does each lantern represent? Use repeated addition to complete the first problem with the 3 red lanterns. (Hint: All numbers are less than 10.)



✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

6 × 4	5 × 5	8 × 8	8 × 4	9 × 9	6 × 6

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Lesson 16

TIME: HALF- AND QUARTER-HOUR INTERVALS

Skip Counting

- Skip count by 3s from 3 to 30. For an extra challenge, count backward by 3s from 30 down to 3.
- Skip count by 20s from 100 to 300.

○ Read to the child: Today, we'll explore math with 9-year-old Jack and his 10-year-old cousin Kylie who live in Australia. Do you remember how many hours there are in a full day and night? Many countries, including China, have 24-hour clocks. That means that after 12 o'clock in the afternoon, instead of starting back at 1 o'clock they continue counting up to 13, and then 14 until 24. In the United States, Canada, Australia, and several other countries around the world, the 24 hours in a day are divided into two 12-hour parts. The first 12 hours from 12:00 midnight until 11:59 are called "AM." The abbreviation AM stands for *ante meridiem* and means "before noon." Twelve o'clock midnight is part of the AM group. What are some things that you do before noon every day?

The second 12 hours from 12:00 noon until 11:59 are called "PM." The abbreviation PM stands for *post meridiem* and means "after noon." What are some things that you do after noon every day? Twelve o'clock noon is part of the PM group. Draw a line connecting the things Jack and Kylie do to the correct time:

Eat lunch 12:00	AM	Make bed
Say evening prayers	PM	Wake up
		Go to bed

○ Read to the child: Draw a line on the clock from the 12 down to the 6, dividing this clock into two equal parts. Now use your pencil to shade in one of the parts. What do we call fractions when 2 equal parts make up the whole? [halves] When the minute hand travels from the 12 down to the 6, it has traveled halfway around the clock. Point to the half on the right. This is half of an hour. That is why when the minute hand points to the six we can say that it is half past the hour. Write the words "past" and "after" on the right side of the clock.

Point to clocks 1–3. Clock 1 says 1:30 because the minute hand is pointing to the 6. Exactly half of the hour has passed, so you can read this time as "half past one o'clock." Do you notice how the hour hand is also halfway between the 1 and the 2? What are some ways to read the time shown on clocks 2 and 3? [8:30, half past eight; 4:30, half past four]

1

2

3

○ Read to the child: Divide this clock into 4 equal parts by drawing a line from the 12 to the 6 and another line from the 9 to the 3. What do we call fractions with 4 equal parts in a whole? [fourths] Use your pencil to shade in one fourth of this clock from 12 to 3.

If you divide a dollar into 4 equal parts, or fourths, you'll have 25 cents. Do you remember what the coin worth 25 cents is called? [quarter] When you divide an hour into 4 equal parts, you have 15 minutes in each part. Quarter is another way of saying fourth. When the minute hand points to the 3, one quarter of the hour has passed, so we can say it is a "quarter past" the hour.

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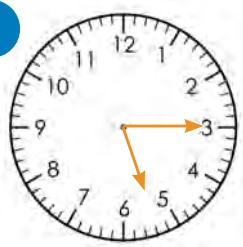
Point to clock 4. What time is shown on clock 4? [5:15] Another way to say this time is "quarter past five" or "quarter after five" because the minute hand has moved one quarter of the way around the clock. Read the times on clocks 5 and 6, saying the time with numbers and also using "quarter past" or "quarter after." [12:15, quarter past/after twelve; 7:15, quarter past/after seven]

4



5

6

When the minute hand points to the 9, how much time is left before it is a new hour? [15 minutes] Fifteen minutes is the same as one quarter of an hour, which means there is one quarter of an hour remaining until the next hour. We can say the time is "quarter to" or "quarter till" the next hour.

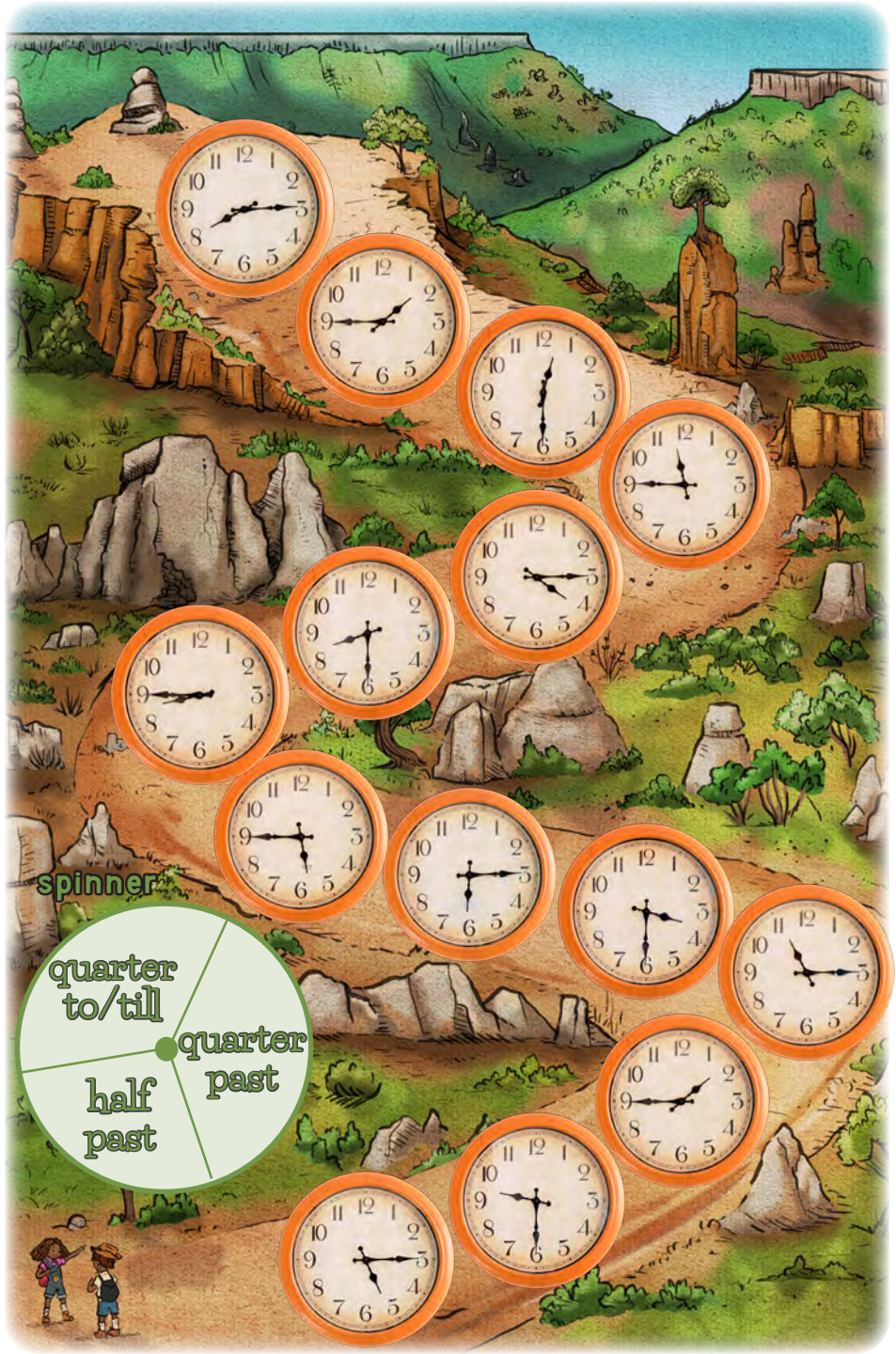
Point to clock 7. What time is shown on clock 7? [2:45] Another way to say this is "quarter till three" because there is a quarter of an hour remaining until we reach three o'clock. For this time expression, you have to look at what the next hour will be, instead of what the current one is. Read the times on clocks 8 and 9, saying the time with numbers and also using the expression "quarter till" or "quarter to." [1:45, quarter till/to two; 11:45, quarter till/to twelve]

7

8

9

Take the game pieces and paper clip from the math box. Make a spinner using a pencil and paper clip on the game board. We will take turns flicking the spinner and moving our game pieces to the next clock with a time that matches the expression the paper clip landed on. Then read the time aloud. The first person to the end wins. Play two or three times.



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LESSON PRACTICE

Write the time shown on the clock. Then circle whether the time is quarter past, half past, or quarter to the next hour.

____ : ____

quarter past
half past
quarter to

____ : ____

quarter past
half past
quarter to

____ : ____

quarter past
half past
quarter to

____ : ____

quarter past
half past
quarter to

Write the time on the digital clocks.

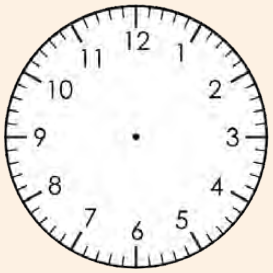
half past four

quarter after three

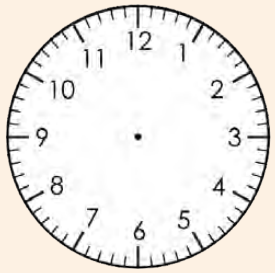
quarter till ten

Draw hands on each clock to show each time.

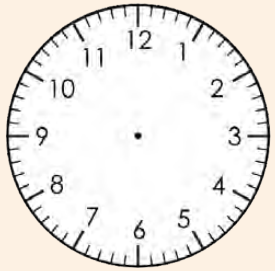
quarter after four



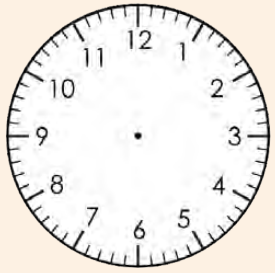
half past seven



quarter to eleven



quarter to two



Jack's family eats dinner at 5:30. Circle the correct time of day label (AM or PM), and then draw a line from the correct phrase to the hour.

AM **PM**

quarter past	
half past	five
quarter to	

Kylie's father leaves for work at 8:15 each morning. Circle the correct label (AM or PM), and then draw a line from the correct phrase to the hour.

AM **PM**

quarter past	
half past	eight
quarter to	

Kylie gets ready for bed at 7:45. Circle the correct label (AM or PM), and then draw a line from the correct phrase to the hour.

AM **PM**

quarter past	
half past	eight
quarter to	

Have you heard someone say that "time flies"? Time can't actually fly, but it can feel like it's going by very quickly.

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REVIEW & ACTIVITIES

Write this number in expanded form.

71,604 _____

For each addition problem, write the numerals from the expanded form in the green box and complete the problem.

6,000 + 400 + 7

	,	
+	3	719

4,000 + 80 + 6

	,	
−	2	756

Is it EVEN or ODD?

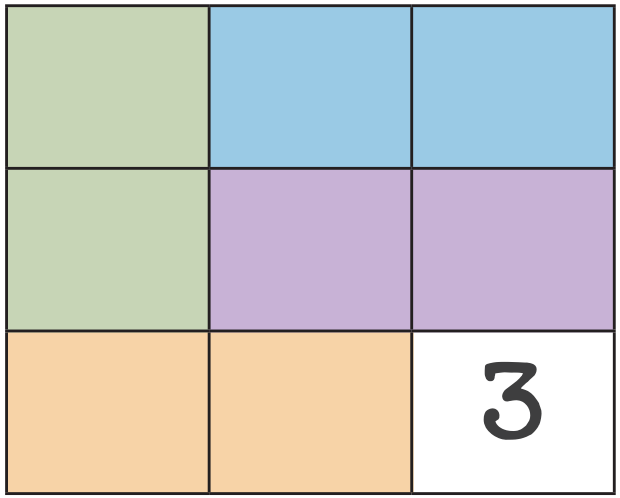
Draw a line to connect the numbers to the correct answer.

1,071		10,130
99	EVEN	15
378	ODD	989
2,683		216

Write a multiplication problem and complete it to find out how many watches there are.

Number Cube Puzzle

This kind of puzzle is popular in Asian countries. To complete it, you need the digits 1, 2, and 3 in each row and each column. Use the clues to help you complete it.



The digits in the green boxes must add up to 5.

The digits in the blue boxes must add up to 3.

The digits in the purple boxes must add up to 4.

The digits in the orange boxes must add up to 3.

Multiplication Fact Quiz

Have your parent or teacher quiz you on the Set A multiplication facts below, and circle any facts you missed. You will be doing targeted practice on these facts for the rest of the unit.

6 × 6	4 × 6	8 × 4	5 × 5	3 × 4	8 × 8	4 × 8
3 × 5	3 × 3	6 × 4	5 × 3	9 × 9	4 × 3	

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Lesson 17

ESTIMATING DISTANCE IN MILES OR KILOMETERS

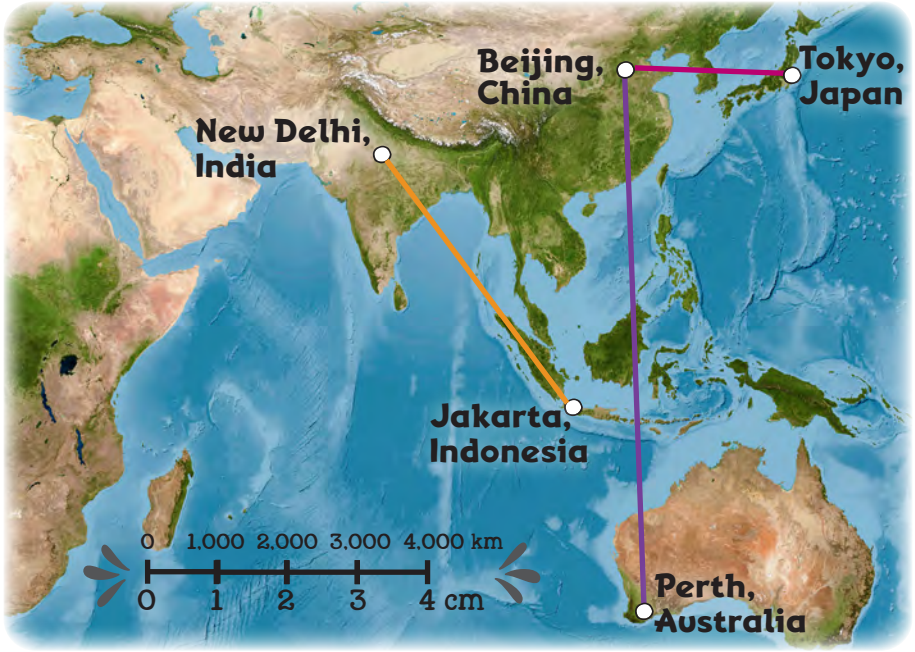
Skip Counting

Practice the following with the child.

- Count by 2s from 20 to 50.
- Count from 21 to 41 naming all the odd numbers.

Money

- Count the coins aloud as you point to each one.



○ Take the measuring tape from the math box. Read to the child: Jack and Kylie live in Australia. They are curious about how far away different countries are and carefully examine a map to estimate the distances in kilometers. About how far do you think they are from China? Have the child make a guess (in kilometers) and write it on the whiteboard. ***Estimating*** allows you to make the best guess possible using known information. Map designers use scales to help the reader get a sense of size because it is not possible to draw a map in actual size. It would be too large! Point to the map of South Asia and Australia. Find the scale at the bottom left corner of this map. One centimeter on this map represents how many kilometers? [1,000]

Use the metric side of your measuring tape to measure the line between Beijing, China, and Perth, Australia. Count by 1,000s for every centimeter you measure. Circle the distance below and compare to your guess.

5,000 km 7,000 km 9,000 km 6,000 km

About how many kilometers is it from Beijing to Tokyo? Make a guess, and then measure the line and count by 1,000s for every centimeter you measure. Circle the answer.

2,000 km 3,000 km 1,000 km 4,000 km

About how many kilometers is it from New Delhi to Jakarta?

2,000 km 3,500 km 1,000 km 4,000 km

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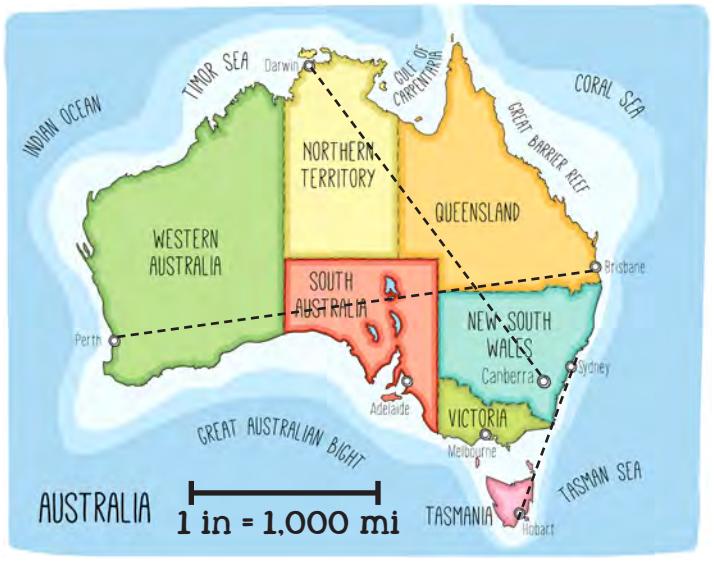


Point to the map of Australia above. Find the scale at the bottom of the map. Then fill in the blank with the correct information. Estimate the number of miles between the Australian cities marked with dashed lines and write your guesses on the whiteboard.

1 inch = _____ miles

Use the inch side of the measuring tape to measure the actual distances. Remember, if the measurement is halfway between the inch marks, then add half of 1,000 to the measurement. What is half of 1,000? [500]

1. About how far is it from Sydney to Hobart?

2,500 mi 3,000 mi 1,500 mi 1,000 mi

2. About how far is it from Darwin to Canberra?

2,000 mi 3,500 mi 1,000 mi 4,000 mi

3. About how far is it from Perth to Brisbane?

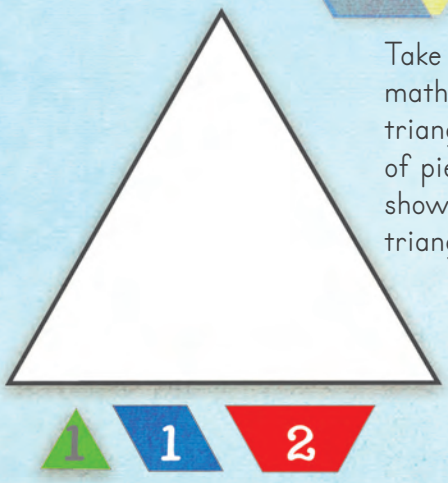
2,500 mi 3,000 mi 1,500 mi 1,000 mi

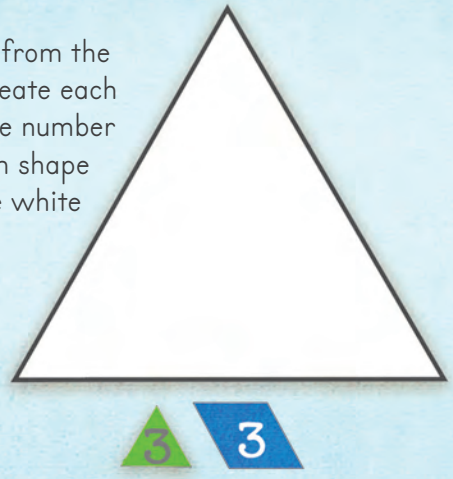
Compare your estimate to the actual distances.

LESSON PRACTICE

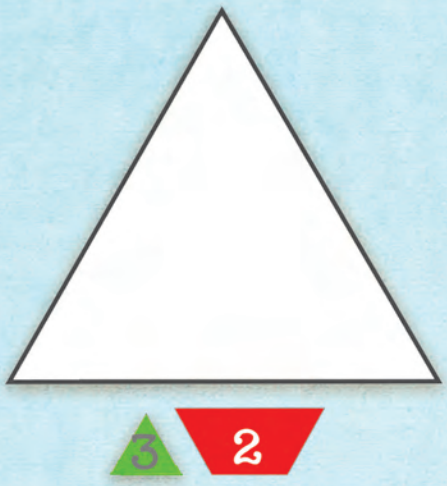
Geometric Games

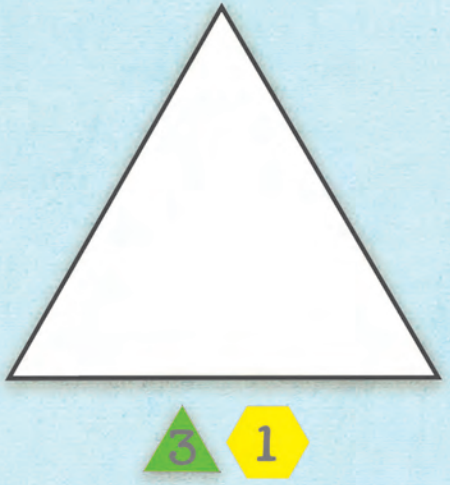
Take the shapes from the math box and create each triangle using the number of pieces of each shape shown under the white triangles.





(Note: white triangles are not drawn to scale.)





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Jack and Kylie want to go on some hikes, but they need to estimate the different distances before choosing a trail. Use the scale to help you measure and estimate the distances in either kilometers (on the left side map) or miles (on the right side).

While visiting South Australia's Flinders Ranges, they wanted to go on a 4-kilometer hike. Which trail should they choose? Measure each trail in centimeters and use the scale to determine how many kilometers it represents. Circle the hike that is 4 kilometers long (one direction).

Hike A: _____ cm → _____ km

Hike B: _____ cm → _____ km

The next day they wanted to go on a 3-mile hike using a different map that used inches to represent miles. Which trail should they choose? Measure both trails in inches and find the distance represented by each line on the map in miles. Circle the hike that is 3 miles long.

Hike C: _____ in → _____ mi

Hike D: _____ in → _____ mi

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REVIEW & ACTIVITIES

Write the time shown on the clock. Then circle whether the time is half past the hour, quarter past the hour, or quarter to the next hour.

quarter past
half past
quarter to

____ : ____

quarter past
half past
quarter to

____ : ____

quarter past
half past
quarter to

____ : ____

Circle the things you do in the AM hours.

Eat breakfast Eat dinner

Say morning prayers

Admire the sunset See the sun rise

Circle the things you do in the PM hours.

Say "good morning" Eat dinner

Make your bed

Say bedtime prayers Put on pajamas

For each addition problem, write the numerals shown in expanded form in the green box and complete the problem.

6,000 + 90 + 2

____,____
+ 1,274

7,000 + 600 + 40

____,____
+ 3,178

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

3 × 5	3 × 4	6 × 4	4 × 8
9 × 9	3 × 3	5 × 3	6 × 6

Even or Odd? Circle all the products (answers to multiplication problems) above that are EVEN.

Unscramble the letters to find a number word.

- higet _____
- nte _____
- neo _____
- wot _____

Number Logic

- What is the largest possible number you can create using each of these digits once?

2 5 8 3

- What is the smallest possible number you can create using each of these digits once?

3 8 5 2

- How old is Jack and Kylie's grandfather? Use the clues to help you find out.

1. **The digits of his age add to 15. (Example: 9 + 6 = 15)**
2. **His age is an even number.**
3. **He is younger than 90.**

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Lesson 18

MEASURING TO THE HALF INCH

Mental Math

- Add and subtract, and then answer aloud.

452 + 400 = 684 - 300 = 232 + 700 = 861 - 500 =

Skip Counting

- Skip count by 8s from 8 to 88.

○ Give the child blue and green colored pencils. Read to the child: We have been practicing measuring inches and centimeters to the nearest inch or centimeter. Usually when you measure something, it is a little more or a little less than a full unit long. When this happens, we can use the tick marks between the units to measure more precisely. Look at the ruler below and find the long, blue marks. These show where we measure for a full inch. Use a blue colored pencil to trace the line next to the 3-inch and 4-inch marks on the ruler.

Now find the shorter green tick marks. They are halfway between the blue inch lines and they show half-inch measurements. The first green mark measures a half inch. The second mark measures one and a half inches. Use a green colored pencil to trace the half-inch line between 2 and 3 inches, and between 3 and 4 inches. You can write half measurements in two ways. You can use the fraction $\frac{1}{2}$. Or you can use a decimal point with a 5, like this: 0.5, which means five tenths. It is similar to when you have 5 dimes. If one dollar represents one whole, then 5 dimes would be half of a dollar. Write 0.5 over the half-inch line and 1.5 over the 1-and-a-half inch line.

○ Take the measuring tape from the math box. Read to the child: Jack likes to study butterflies and other insects in his yard. Use your measuring tape to measure the length of these insects to the nearest half inch. Write the length in the box, using a decimal point (.) and the number 5 to represent half of an inch.

in

in

in

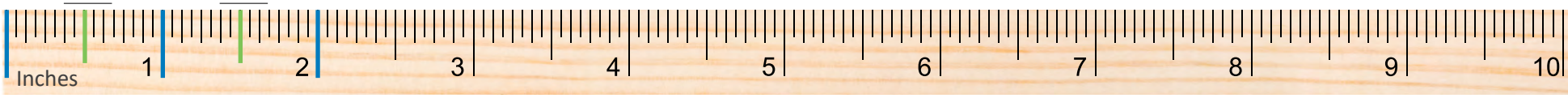
in

Using the ruler at the bottom of the page, or your measuring tape, measure the following items to the nearest half inch. Write the answers in decimals in the boxes.

1. The height of this book from the top of this page to the bottom (not from side to side). in

2. The length of your pencil. in

3. The length or width of a reading book. in



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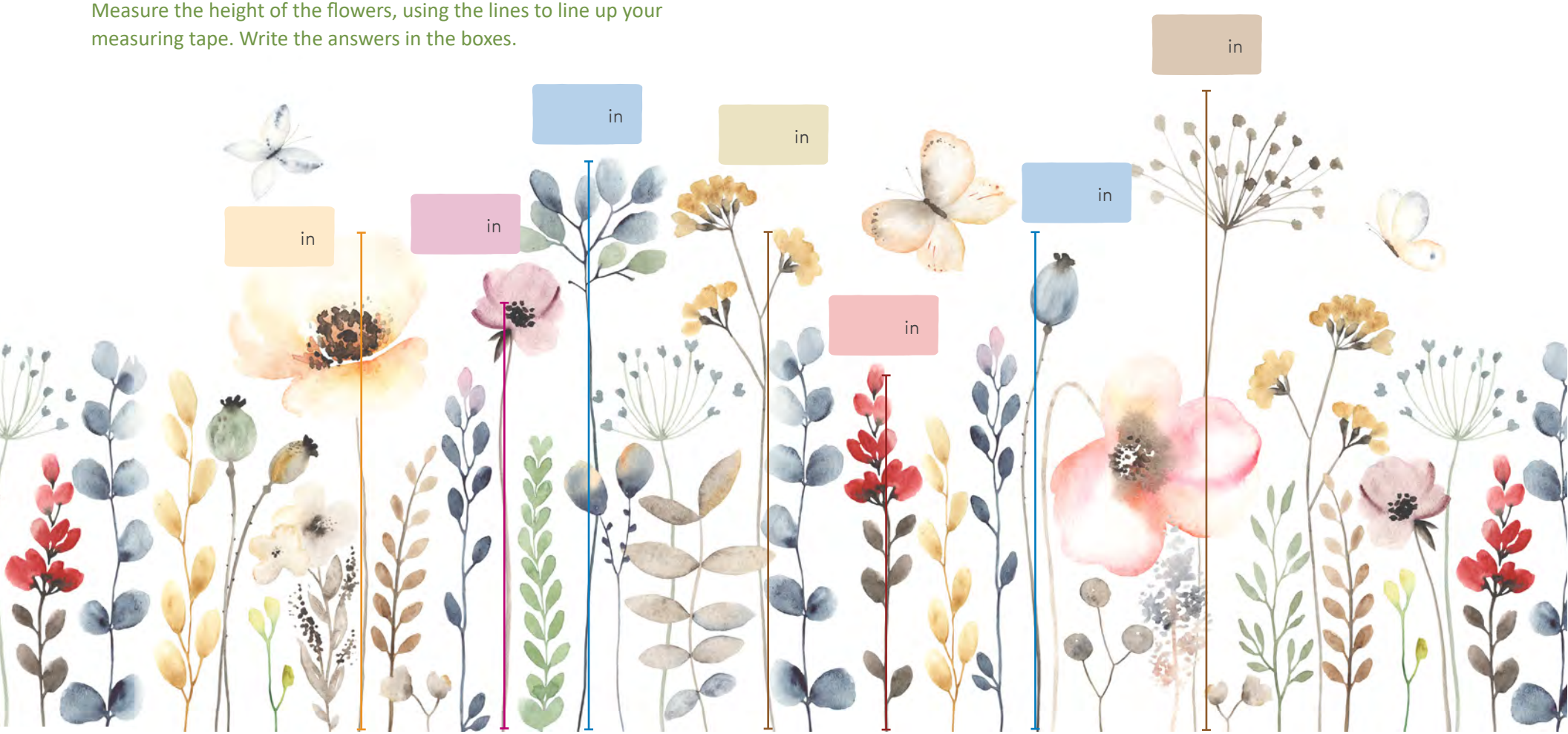
LESSON PRACTICE

Circle all the half-inch tick marks on the ruler below.

Measure the height of the flowers, using the lines to line up your measuring tape. Write the answers in the boxes.



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REVIEW & ACTIVITIES

Circle the most reasonable amount of time it takes to do each activity.

- Eat lunch
  seconds | minutes | hours
- Clap your hands three times
  seconds | minutes | hours
- Hike a 10-mile trail
  seconds | minutes | hours

Circle the correct answer.

- Which month comes after May?
  April | July | August | June
- What is the 7th month of the year?
  August | June | July | May
- Which day comes before Thursday?
  Wednesday | Friday | Saturday

How long is the pencil in centimeters and millimeters? (Hint: Skip count by 10s to count the millimeters. 1 cm = 10 mm)

_____ cm = _____ mm

For each digital clock, write the time given.

half past two

quarter past six

Write the number on the chart. Remember to include the comma.

Thirty-two thousand, seventy-five

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Twenty-five thousand, six hundred fifty-nine

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

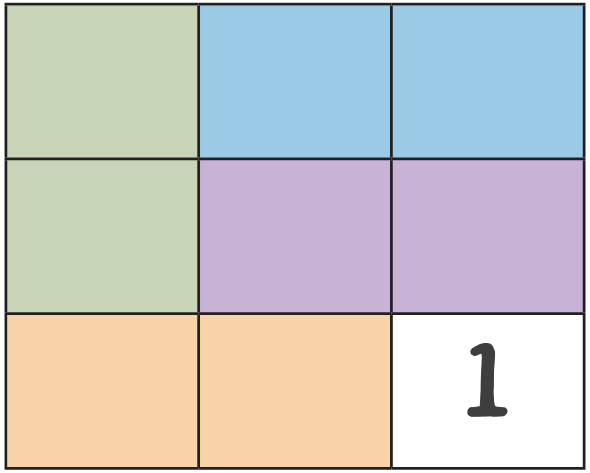
Complete the problems.

$$\begin{array}{r} 758 \\ -\ 429 \\ \hline \end{array} \qquad \begin{array}{r} 682 \\ -\ 249 \\ \hline \end{array}$$

$$\begin{array}{r} 841 \\ -\ 637 \\ \hline \end{array} \qquad \begin{array}{r} 923 \\ -\ 806 \\ \hline \end{array}$$

Number Cube Puzzle

To complete this puzzle, you need the digits 1, 2, and 3 in each row and each column. Use the clues to help you complete it.



The digits in the green boxes must add up to 3.

The digits in the blue boxes must add up to 5.

The digits in the purple boxes are 1 and 3.

The digits in the orange boxes must add up to 5.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 9 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 5 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times\ 3 \\ \hline \end{array}$$

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Multiplication Chart

Fill in the blanks on the chart with the correct numbers. To find the answers, multiply the number at the top of the column by the number on the left end. For example, find the orange 1s and put a finger on each one. Slide your fingers in a straight line across or down until they meet at a blank. Then multiply 1 × 1 = 1; write a 1 in the first blank box.

×	1	2	3	4	5	6	7	8	9	10
1			3		5	6			9	
2	2		6	8			14	16		
3	3	6	9	12	15	18	21	24	27	30
4	4		12	16	20	24	28	32	36	
5		10	15	20	25	30	35	40	45	
6		12	18	24	30	36	42	48	54	60
7	7		21	28	35	42	49	56	63	
8	8		24	32	40	48	56	64	72	80
9		18	27	36	45	54	63	72	81	90
10	10	20			50		70			100

Write the answers to the problems below. Any number multiplied by zero will always equal zero.

$$\begin{array}{r} 3 \\ \times\ 0 \\ \hline \end{array} \qquad \begin{array}{r} 0 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 9 \\ \times\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ \times\ 0 \\ \hline \end{array} \qquad \begin{array}{r} 0 \\ \times\ 8 \\ \hline \end{array}$$

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Lesson 19

ELAPSED TIME

Ask the child the following questions:

- How many items are in a dozen? A half dozen?
- If I had a dozen flowers and you had a half dozen, how many flowers would we have altogether?

Read to the child: Jack loves to learn. He spent the morning doing math and learning to draw butterflies of Australia. The clocks below show the times he started and finished his schoolwork. What times are shown on the clocks? The amount of time that passes from one event to another is called ***elapsed time***. Using the number line below or counting hours on the clock, start at 9:00 AM and count the number of hours that pass until you reach 12:00 PM. Write the number of elapsed hours in the box.

started

finished

_____ hours

Elapsed Time

Another way to find elapsed time is by using subtraction. This strategy works when you are finding the difference between full hours if you are not crossing AM and PM or when the elapsed time occurs within the same hour. To find the answer, subtract the start time from the end time.

12 End
− 9 Start
_____

In the afternoon Jack and his mom volunteered at a soup kitchen, serving lunch to those in need from 1:02 PM to 1:45 PM. To figure out the elapsed time, we could start at 1:02 PM and count the number of minutes that pass until we reach 1:45 PM, but that would take a long time. Instead, we can use subtraction since the times are within the same hour. Subtract the start time from the end time to find the elapsed time.

Start 1:02 PM

End 1:45 PM

_____ minutes

Elapsed Time

1:45
− 1:02
_____
:

Read to the child: Jack loves to draw shells. Determine how long it took Jack to draw each shell. Then circle your favorite drawing.

Start 3:22 PM

End 3:57 PM

_____ minutes

Elapsed Time

3:57
− :
_____

Start 4:13 PM

End 4:46 PM

_____ minutes

Elapsed Time

4:46
− :
_____

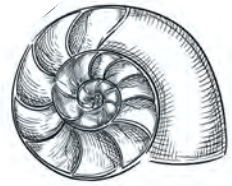
Start 5:09 PM

End 5:21 PM

_____ minutes

Elapsed Time

:
− :
_____



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LESSON PRACTICE

Jack's and Kylie's families went to an Australia Day celebration on Saturday from 1:00 PM to 5:00 PM. How long were they at the celebration?

1 : 00 PM ____ hours 5 : 00 PM

Later that night they watched the Australia Day fireworks to celebrate the founding of the country. The fireworks show went from 10:04 PM until 10:38 PM. How long did it last? Subtract the start time from the end time to find the elapsed time.

Start		
10:04 PM		:
End	minutes	− :
10:38 PM	Elapsed Time	

Write the times shown on the clocks. Then find the elapsed time.

started

finished

____ hours

____ : ____ AM ____ : ____ AM

Jack's Nature Notebook

Here are the butterflies from Australia that Jack sketched in his nature notebook. Write how much time it took him to draw each butterfly. Use scratch paper if needed.

	start	end		elapsed time
1	9:17 AM	9:39 AM		____ min
2	10:03 AM	10:50 AM		____ min
3	11:15 AM	11:47 AM		____ min
4	8:23 AM	8:54 AM		____ min
5	12:11 PM	12:55 PM		____ min

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REVIEW & ACTIVITIES

Fill in the missing number words.

261: _____ hundred _____ -one

403: four _____ three

517: _____ hundred seventeen

956: nine hundred _____-_____

Add or subtract to find the missing digits and complete the problems.

$$\begin{array}{r} 12{,}6\square 5 \\ +\ \square{,}206 \\ \hline 16{,}\square 8\square \end{array} \qquad \begin{array}{r} 5{,}8\square 9 \\ -\ \square 24 \\ \hline \square{,}15\square \end{array}$$

How many teaspoons are in 1 tablespoon?

1 Tbsp = _____ tsp

How many teaspoons would you need to fill up 3 tablespoons?

[ ] × [ ] = [ ]

# of Tbsp · # tsp in 1 Tbsp · teaspoons

Circle the firework to the right of the blue one.
Cross out the firework to the left of the gold one.

Circle the correct answers.

- Which month comes before May?

  April | July | August | June

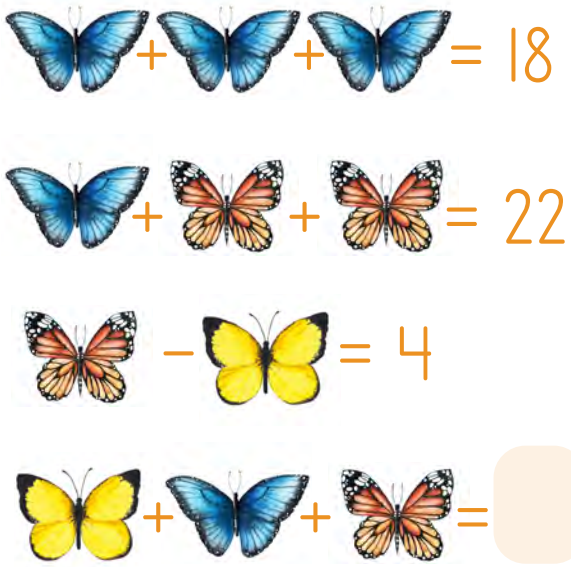
- What is the 8th month of the year?

  August | June | July | May

- Which day comes before Saturday?

  Wednesday | Friday | Sunday

What number does each butterfly represent? Use repeated addition to complete the first problem with 3 blue butterflies. Hint: All butterflies represent numbers that are less than 10.



Below is a list showing the number of butterfly species in Australia, Honduras, and Japan. Round each number to the nearest ten.

Australia:	403	_____
Honduras:	861	_____
Japan:	327	_____

Below is a list showing the number of butterfly species in Brazil, Mexico, and Nigeria. Round each number to the nearest hundred.

Brazil:	3,332	_____
Mexico:	2,045	_____
Nigeria:	1,828	_____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 5 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 6 \\ \hline \end{array}$$

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Lesson 20

WRITING NUMBERS TO THE HUNDRED THOUSANDS

Mental Math

Add 10 to the numbers by changing the digit in the tens place.

Examples: 146 + 10 = 156 | 637 + 10 = 647

215 + 10 | 354 + 10 | 467 + 10 | 579 + 10

Read to the child: You have already learned place value up to the ten thousands place. Today, we are going to learn place value to the hundred thousands place. Australia's national animal is the kangaroo. Kangaroos are the only large animals known to move about by hopping. They can hop very fast. Point to the number in purple. This is how many feet they can hop per hour. Look at the number as I read it, and notice how I say THOUSAND when I reach the comma. Read this number slowly, "seventy-three thousand, nine hundred twenty-one."

73,921

Now, you read these numbers, saying THOUSAND when you get to the comma.

84,764 | 95,056 | 99,999

What number comes after 99? What comes after 999? 9,999? What do you think comes after 99,999? Read these numbers, saying THOUSAND when you get to the comma.

100,234 | 125,542 | 233,165

103,400 | 205,002 | 789,015

Two of the main species of kangaroo found in Australia are the red and the western grey kangaroos. The number on the place value chart shows how many red kangaroos are in Western Australia. Read the number aloud. The numbers in the thousands are in the green columns. Notice how there is a hundred thousands, ten thousands, and thousands in the thousands section.

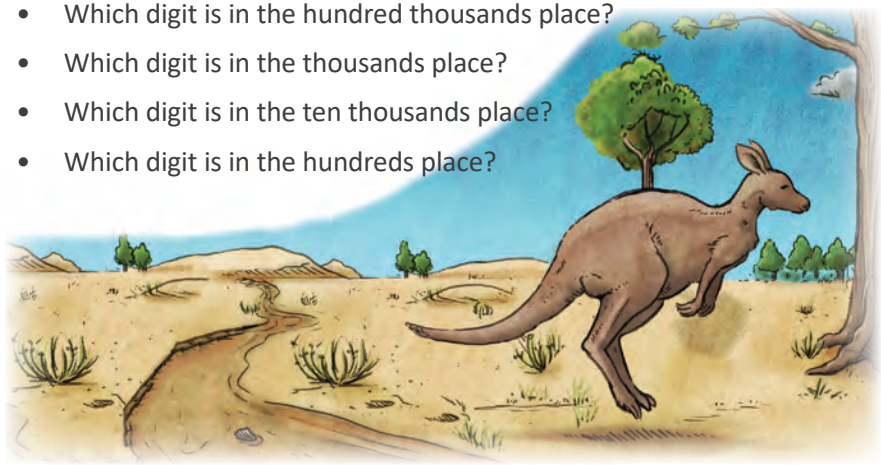
thousands					
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
6	3	8,	1	2	5

- Which digit is in the hundred thousands place?
- Which digit is in the thousands place?
- Which digit is in the ten thousands place?
- Which digit is in the tens place?
- Which digit is in the hundreds place?

I will now tell you the number of western grey kangaroos found on the east coast of Australia, and you write the number on a whiteboard using digits. Read this number aloud as many times as necessary for the child to write it down: four hundred ninety-six thousand, fifty-nine. [496,059]

Using the number you just wrote, answer the following questions. Look at the chart on this page if needed:

- Which digit is in the hundred thousands place?
- Which digit is in the thousands place?
- Which digit is in the ten thousands place?
- Which digit is in the hundreds place?



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LESSON PRACTICE

Kangaroo CONNECTION

Baby kangaroos are called joeys. Match the mother kangaroo with the correct joey by matching the number to its written form.

432,506

402,536

342,560

423,605

420,356

three hundred forty-two thousand, five hundred sixty

four hundred twenty-three thousand, six hundred five

four hundred thirty-two thousand, five hundred six

four hundred twenty thousand, three hundred fifty-six

four hundred two thousand, five hundred thirty-six

Write the digit in each place value.

284,359

Ten thousands place: ____

Thousands place: ____

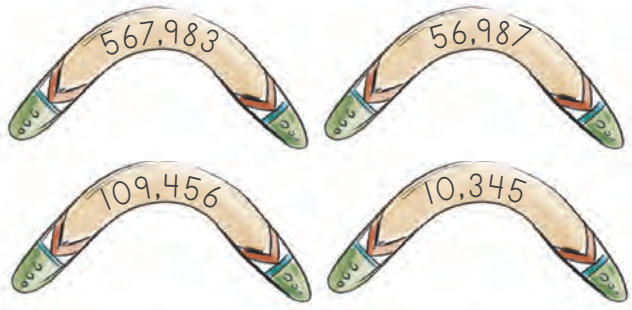
Hundred thousands place: ____

Write each of the following numbers using digits. Remember to include the comma.

one hundred nine thousand, forty-two

four hundred seventy thousand, thirty-six

Circle the numbers that are greater than 100,000.



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REVIEW & ACTIVITIES

Complete the problems, and then use the >, <, or = signs to compare the sums.

$$\begin{array}{r} 7{,}063 \\ +\ 2{,}809 \\ \hline \end{array} \qquad \bigcirc \qquad \begin{array}{r} 6{,}708 \\ +\ 3{,}271 \\ \hline \end{array}$$

Complete the skip counting pattern.

120, _____, 160, _____, 200, 220, _____

The purple map outline of Australia is the correct map of Australia. Circle two maps that are also matches and cross out three maps that are not exact matches of the purple map.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more.

3 × 3 = 6 × 6 = 8 × 8 = 9 × 9 =

Jack's Nature Notebook

Jack also sketched some insects from Australia. Use a whiteboard to find how much time it took Jack to draw each insect.

	start	end		elapsed time
1	8:14 AM	8:53 AM	Rose Aphid	
2	4:23 PM	4:59 PM	Australian Funnel-Web Spider	
3	10:37 AM	10:45 AM	Banded Sugar Ant	
4	2:02 PM	2:35 PM	Painted Apple Moth	
5	5:12 PM	5:41 PM	Bess Beetle	

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Lesson 21

GALLONS, QUARTS, PINTS, AND CUPS: PART 1

Opt. Supplies
1-cup measuring cup, mixing bowl

Calendar

How many days are in each month? Fill out the calendar chart on the back of the array mat. (If needed, have the child watch daily until mastered one or both of these videos on The Good and the Beautiful Kids YouTube channel: "How Many Days Are in a Month?" or "Days in Each Month Song.") Erase the mat when finished.

○ Read to the child: In previous lessons you have learned how to measure the length of an object. Today, you will learn how to measure ***volume***, which is the amount of space an object or liquid takes up. In the US customary system, volume is measured using gallons, quarts, pints, and cups. The amount of liquid a container can hold is called ***capacity***.

Look at the images above. The gallon is the largest unit. The next largest unit is the quart. The word quart comes from quarter, which also means fourth. A quart is one-fourth of a gallon. Look at the visual to the right. The giant G represents gallon. Inside the Gallon G there are four Qs. The Qs represent quarts. This visual

can help you remember that there are 4 quarts in a gallon. The next unit is pints. Look at the visual again. How many Ps are inside one Q? There are 2 pints in every quart. Now count all the Ps in the visual to find how many pints are in a gallon. The smallest unit is cups. How many tiny Cs are inside one P? There are 2 cups in a pint. Now count the number of Cs inside one Q. There are 4 cups in a quart. Finally, count the number of Cs in the whole visual to find the number of cups in a gallon.

We are going to memorize and review this sentence in this course. I'll read it aloud, and then you read it aloud with me twice.

There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

○ **Optional Activity:** Give the child a 1-cup measuring cup and a large mixing bowl. Have the child put 1 pint of water into the bowl (using 2 cups). Dump it out. Have the child put in 1 quart of water by adding 2 pints (4 cups). Dump it out. Then, without the child looking, put in 1 quart and ask the child if it looks like 1 pint or 1 quart. This activity gives a better visual of how much a pint and a quart are.

○ Read to the child: Look at the items in the first column of this page as you do this activity. Circle the most reasonable unit to use to measure the volume of each item.

A swimming pool	gallon	quart
A small juice box	quart	cup
Ice cream for 4 people	quart	cup
Yogurt for 2 people	gallon	pint

Use the Gallon G visual to fill in the blanks and complete the problems.

How many pints are in 2 quarts?

2 quarts
× ____ pints per quart
____ total pints

How many cups are in 3 pints?

3 pints
× ____ cups per pint
____ total cups

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LESSON PRACTICE

Read the sentence in the green box two times aloud. Then try to recite the sentence without looking at it.

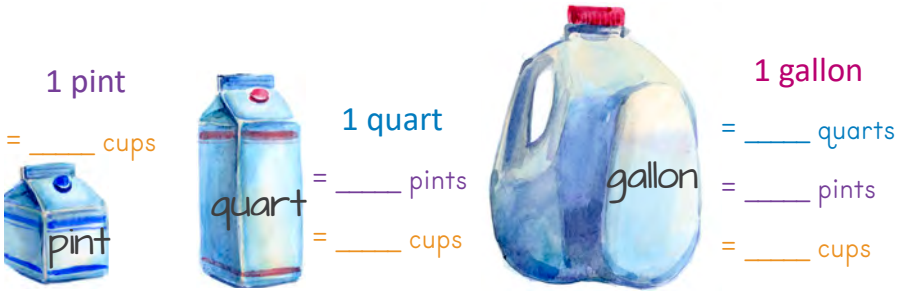
There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

Draw two lines to divide the gallon in fourths. Then write Q (for quart) on each fourth to show that there are four quarts in a gallon.

Draw a line to divide the quart in half. Then write P (for pint) on each half of the quart to show that there are two pints in a quart.

Draw a line to divide the pint in half. Then write C (for cup) on each half of the pint to show that there are two cups in a pint.

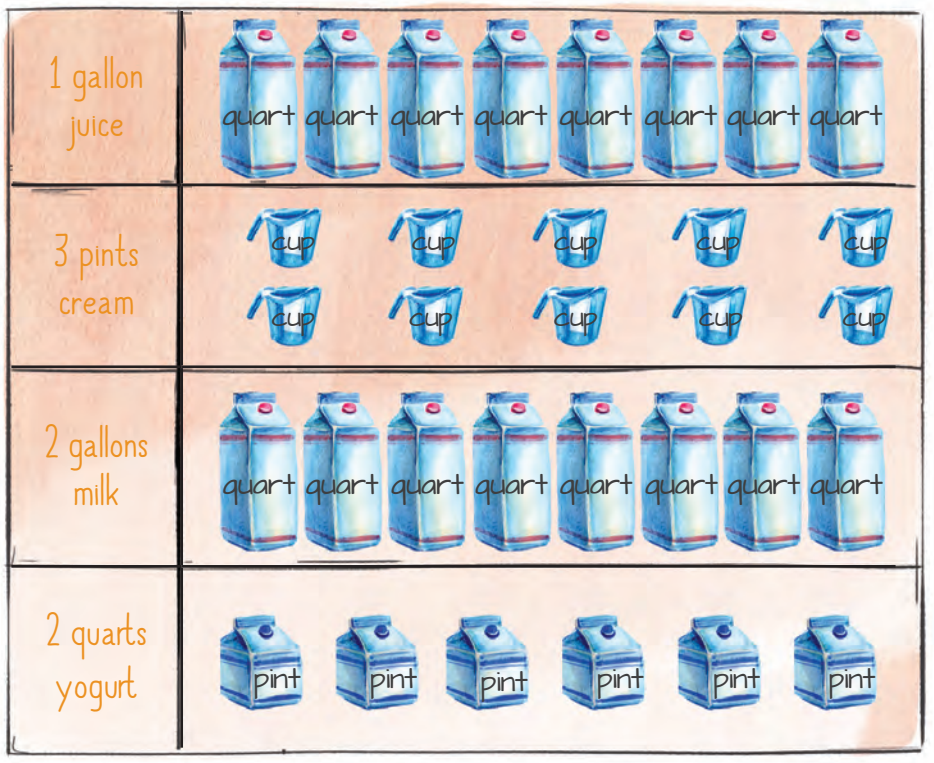
Fill in the blanks to show the conversions. Look at the Gallon G visual on page 71 and use skip counting or multiplication to find the answers.



Which would be the more reasonable measurement for each of the following items? Circle the answer.

A big bucket of paint	**1 gallon**	**1 pint**
A baby's bottle	**2 gallons**	**2 cups**
A family-sized carton of juice	**2 quarts**	**1 cup**
A teacup	**3 pints**	**1 cup**

Jack is shopping with his father. They need to buy the items listed below, but the larger containers are sold out. How many of the smaller containers will they need? Shade the equivalent amounts. Use the Gallon G visual on page 71 to find the answers.


1 gallon juice
quart quart quart quart quart quart quart quart
3 pints cream
cup cup cup cup cup
cup cup cup cup cup
2 gallons milk
quart quart quart quart quart quart quart quart
2 quarts yogurt
pint pint pint pint pint pint

© Jenny Phillips

REVIEW & ACTIVITIES

Write the times shown on the clocks. Then determine how much time has passed from the start time to the end time.

start	end
____ : ____ PM	____ : ____ PM

Elapsed Time: ____ hours

start	end
____ : ____ AM	____ : ____ AM

Elapsed Time: ____ minutes

Write the numerals shown in expanded form in the green boxes and complete each problem.

5,000 + 70 + 6

,
− 3,874

7,000 + 500 + 30

,
− 4,126

9,000 + 80 + 5

,
− 6,173

6,000 + 400 + 70

,
− 1,762

Scoop it up! Add the numbers on each scoop of ice cream. Circle the cone with the greatest sum.

Figure out the skip counting patterns and write the missing numbers.

330, ____, 336, 339, ____, ____, ____ ★ 44, ____, 36, 32, ____, 24, ____, ____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

6 × 6	4 × 6	8 × 4	5 × 5	3 × 4	4 × 8	3 × 5	9 × 9

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Lesson 22

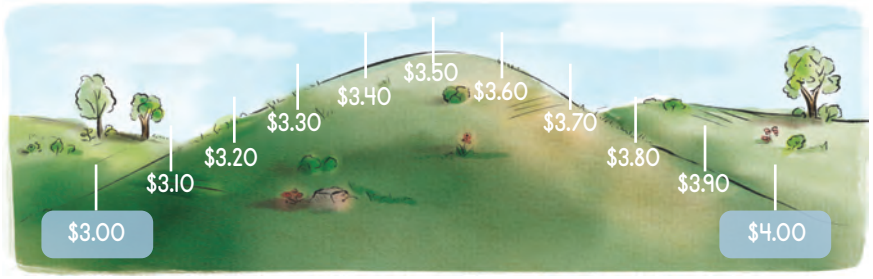
ROUNDING TO THE NEAREST DOLLAR

Measurement

Have the child work on memorizing this sentence.

There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

○ Read to the child: Jack and Kylie love visiting the beautiful hills in Australia. Do you see Kylie and Jack on the next page? One of their favorite things to do there is run up a hill and then roll down. Look at this number line in the shape of a hill.

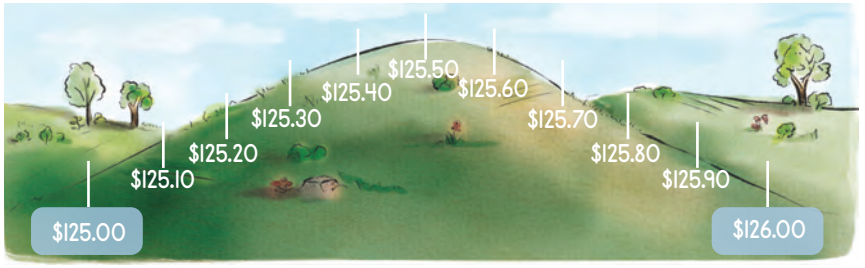


If you run up the hill and stop at the spot marked $3.30, which way would you roll down, towards the $3.00 or the $4.00? [$3.00] Yes, $3.30 is closer to $3.00 than it is to $4.00. This means $3.30 rounds to $3.00.

Notice what is right in the middle of the hill: $3.50. Half of a dollar is 50 cents. When rounding to the nearest dollar, begin by looking at the digits to the right of the decimal. If the value is equal to 50¢ or greater, it rounds up to the next dollar. When the digits after the decimal are less than 50¢ (49¢ or lower), you round down to the nearest dollar. Looking at the hill for help if needed, round each amount to the nearest dollar.

$3.80	$3.50	$3.20	$3.49

○ Read to the child: Let's round to the nearest dollar with dollar amounts that are higher. When rounding money to the nearest dollar, we are rounding to the ones place. So if we are rounding $125 and some cents to the nearest dollar, we would be rounding either down to $125 or up to $126. Looking at the hill for help if needed, round each amount to $125 or $126.



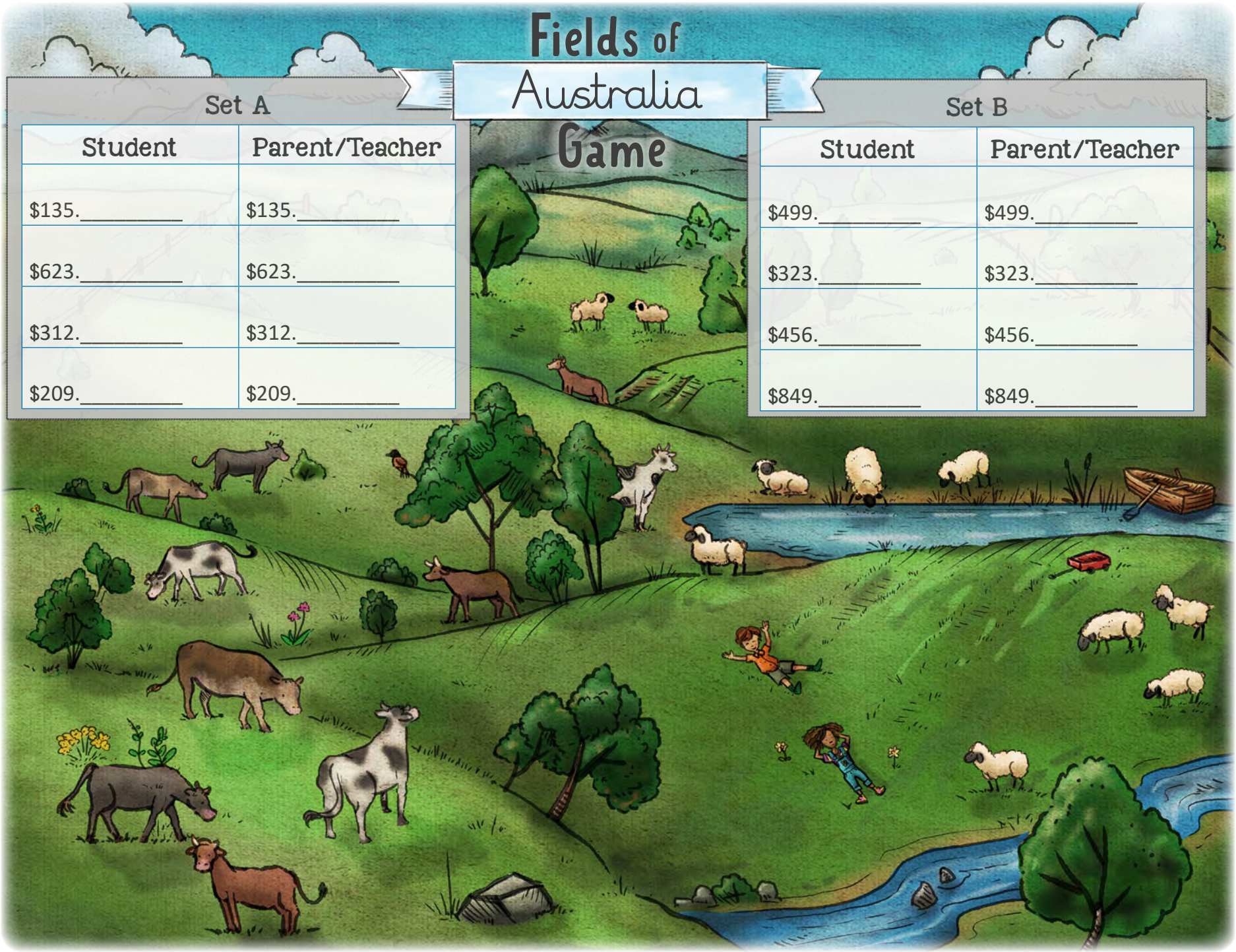
$125.40	$125.50	$125.49

○ **Game—Fields of Australia:** Take the 6-sided and 10-sided dice from the math box. Read to the child: Let's play a game to practice rounding to the nearest dollar. We'll complete the Set A Box on the next page first.

1. You will roll both dice and write the numbers rolled to the right of the decimal point on the first dollar amount ($135). For example, if you rolled a 6 and then a 3, you would write "63," so the total amount would read "$135.63." (Note: If a "10" is rolled, treat it like a zero.)
2. Then you will determine if the number rounds down or up and say the amount rounded to the nearest dollar. If the number rounds up, circle a sheep, and your turn is over. If the number rounds down, do not circle anything, and your turn is over.
3. I will do the same thing, but I will circle a cow if the number rounds up.
4. We will complete Set B Box in the same way.
5. After Set A and B are completed, count the number of sheep circled and the number of cows circled. If more sheep are circled, you win. If more cows are circled, I win. This is completely a game of chance and just for fun!

© Jenny Phillips

Fields of Australia Game



Set A

Student	Parent/Teacher
$135._____	$135._____
$623._____	$623._____
$312._____	$312._____
$209._____	$209._____

Set B

Student	Parent/Teacher
$499._____	$499._____
$323._____	$323._____
$456._____	$456._____
$849._____	$849._____

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LESSON PRACTICE

School Supply Round Up

Jack wants to buy school supplies to donate to a family in need. First, round each price to the nearest dollar and write it in the box below or next to the price tag. Then answer the questions below using rounded amounts.

- Which item costs about $3.00?
- Which item costs the most?
- Which item costs the least?
- Jack decided to buy everything except the items that cost about $16.00 and $14.00 each. Which two items did he not buy?

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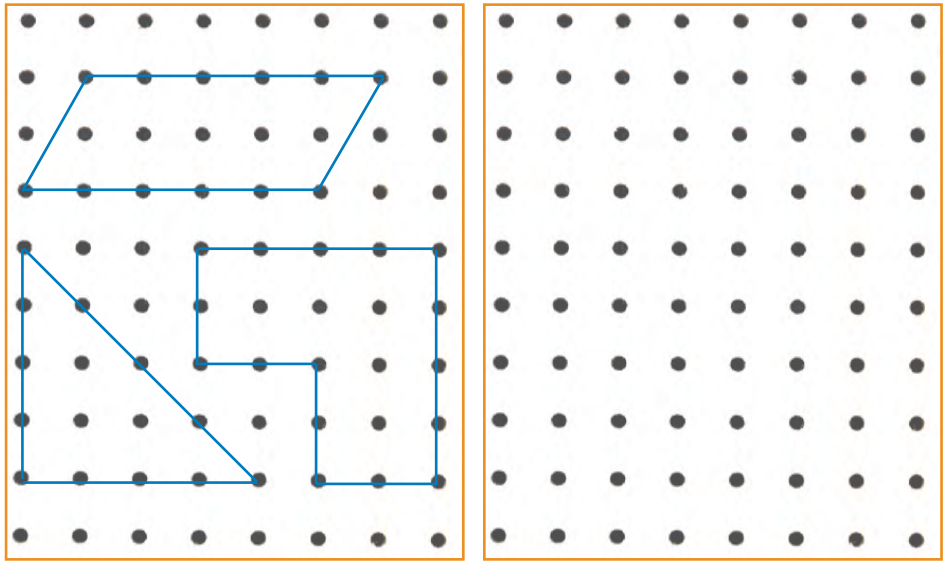
REVIEW & ACTIVITIES

Copy the shapes from the first pegboard onto the blank pegboard.



Read the sentence in the green box two times aloud. Then try to recite the sentence without looking at it.

There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

Fill in the blanks to show the conversions:

1 gallon

= _____ quarts

= _____ pints

= _____ cups

1 quart

= _____ pints

= _____ cups

1 pint

= _____ cups

Complete the problems.

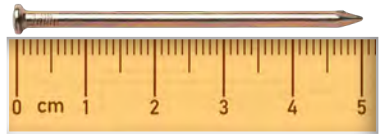
$$\begin{array}{r} 154{,}378 \\ +\ 321{,}430 \\ \hline \end{array}$$

$$\begin{array}{r} 418{,}037 \\ +\ 257{,}423 \\ \hline \end{array}$$

Jack earned $100. He spent $50 on books and gave $20 to his church and charities. How much money does he have left?

Kylie earned $100. She spent $30 on new shoes and gave $20 to her church and charities. How much money does she have left?

Measure the items in centimeters and millimeters. (Hint: 1 cm = 10 mm.)



_____ cm = _____ mm

_____ cm = _____ mm

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 3 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 4 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 4 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times\ 4 \\ \hline \end{array}$$

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Lesson 23

FRACTIONS: UNIT FRACTIONS

Measurement

Have the child work on memorizing this sentence.

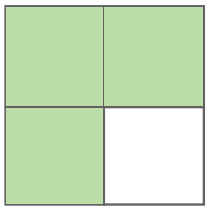
There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

○ Read to the child: Jack's family has a garden where they grow carrots, peas, and corn. The family organizes the different types of crops within the space of their garden using fractions. Fractions name parts of a whole and can be shown using different shapes such as circles, rectangles, and squares. Every fraction has two parts, called the ***numerator*** and the ***denominator***. The numerator (top number) is the number of parts being referred to. In the image below, there are 3 parts that are shaded green, so we write that number above the fraction bar. The denominator is the total number of equal parts that make up the whole. The square is divided into 4 equal parts, so we write 4 below the fraction bar. We read this fraction as three-fourths.

Numerator — the number of parts being referred to

Denominator — the total number of equal parts that make up the whole

$\frac{3}{4}$



○ Remove the garden boxes and vegetable pieces from the Lesson 23 page of the Appendix. Show the child "Jack's Garden." Jack's garden has 7 equal parts that make up the whole garden bed. His family planted carrots in one part. Write a fraction to represent how much of the garden has carrots in the space at the top right. Now count how many parts they planted with peas and write a fraction to represent the peas. Finally, count the parts that are planted in corn and write a fraction.

parts that are carrots / total equal parts

parts that are peas / total equal parts

parts that are corn / total equal parts

○ Read to the child: Fractions that have a numerator of 1 are called ***unit fractions***. The fraction for carrots, $\frac{1}{7}$, is an example of a unit fraction. Shade in one part of each circle, label each unit fraction below, and read its name aloud.

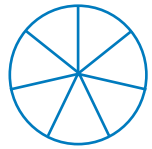
$\frac{1}{2}$ one half

$\frac{1}{3}$ one third

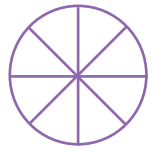
$\frac{1}{4}$ one fourth

$\frac{1}{5}$ one fifth

$\frac{1}{6}$ one sixth



$\frac{1}{7}$ one seventh



$\frac{1}{8}$ one eighth

$\frac{1}{10}$ one tenth

○ Give the child "Kylie's Garden Box" and the vegetable fraction pieces. Kylie's family wants to grow a garden too. Help them plant their garden by splitting the garden box into the correct number of parts for each plant. All the fractions have 10 as the denominator. That means the box needs 10 equal parts. Use the following fractions for the spring garden:

$\frac{2}{10}$ peppers, $\frac{3}{10}$ cucumbers, $\frac{4}{10}$ tomatoes, $\frac{1}{10}$ beets

In the fall the family planted new crops. Clear the box and plant the garden with the correct number of parts for the following plants:

$\frac{3}{10}$ carrots, $\frac{5}{10}$ lettuce, $\frac{1}{10}$ radishes, $\frac{1}{10}$ broccoli

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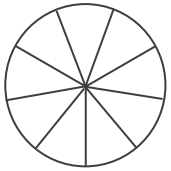
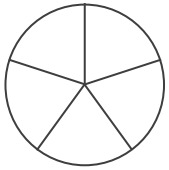
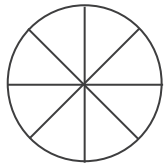
LESSON PRACTICE

Shade each shape according to the fraction shown. Then circle all the fractions that have a 1 as the numerator.

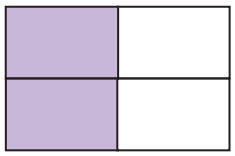

$\frac{5}{9}$

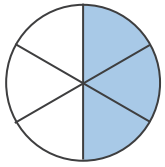
$\frac{1}{3}$

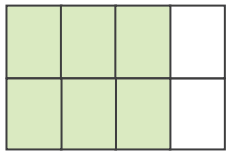

$\frac{1}{5}$


$\frac{3}{8}$

Write the fraction for the shaded parts of each shape. Circle the fraction that has a 6 as the denominator.







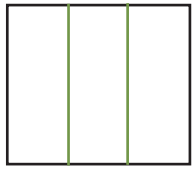
Suppose you start a garden with your family this summer and $\frac{1}{4}$ of the garden has carrots and $\frac{3}{4}$ has peas. Divide the box into 4 equal parts. (Begin by dividing the rectangle in half, and then divide each half into half again.) Label the parts with "C" to represent the fraction of the garden with carrots and "P" to represent the fraction of the garden with peas.

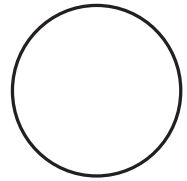
Design your own garden! Divide the garden box below into 8 equal parts. Then decide which kinds of vegetables you will plant using the following fractions:

$\frac{1}{8}$ $\frac{3}{8}$ $\frac{4}{8}$

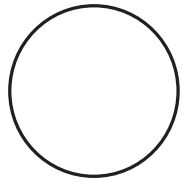
Shade the parts, draw pictures, or write the names of the vegetables to show which ones are in each part of the garden.

Draw lines to divide each shape into the number of parts listed. The first one is done for you.


THIRDS

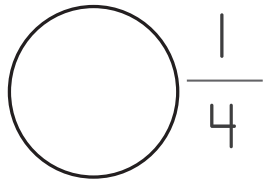

HALVES

SIXTHS

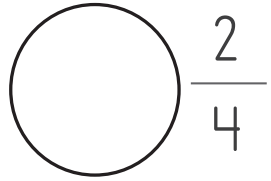

FOURTHS

Draw lines to divide each shape into the number of parts shown by the denominator. Then shade each shape according to the fraction shown.

$\frac{1}{3}$


$\frac{1}{4}$

$\frac{2}{8}$


$\frac{2}{4}$

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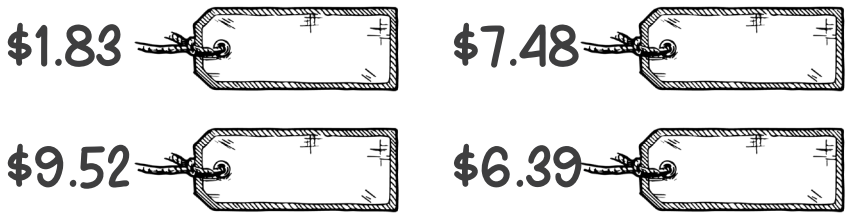
REVIEW & ACTIVITIES

Round to the nearest dollar. Write the rounded price on the tag.



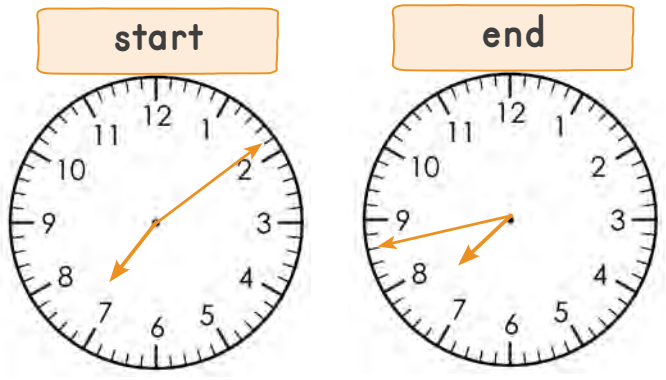
Round each number to the nearest **hundred.** Write the answer in the box.

377	3,175	2,644

Figure out the skip counting pattern and write the missing numbers.

220	240		280		

Write the times shown on the clocks. Then determine how much time has passed from the start time to the end time.



____ : ____ PM ____ : ____ PM

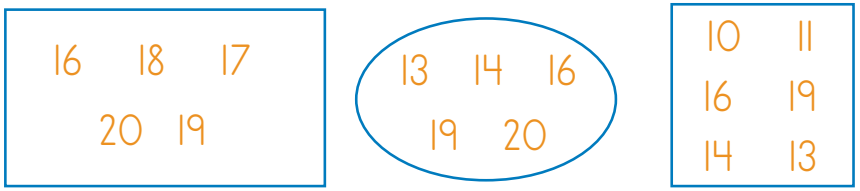
Elapsed Time: ____ minutes

Complete the problems.

237,063	3,428	643,708
+ 416,809	+ 9,261	+ 39,271

Secret Number

Read the clues to find the secret number.



1. It is in the square and the oval.
2. It is greater than 10 and less than 16.
3. It is an odd number.

Answer: ____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section. ☐

5	4	3	4	6	4
× 5	× 6	× 5	× 8	× 6	× 3

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Lesson 24

GALLONS, QUARTS, PINTS, AND CUPS: PART 2

Supplies
tape

Calendar

How many days are in each month? Fill out the calendar chart on the back of the array mat. (If needed, have the child watch daily until mastered one or both of these videos on The Good and the Beautiful Kids YouTube channel: "How Many Days Are in a Month?" or "Days in Each Month Song.")

○ Remove the crocodiles from the Lesson 24 page of the Appendix and give them to the child for the Lesson Practice. Read to the child: Let's review the relationship between gallons, quarts, pints, and cups by reciting this sentence a few times.

There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

Suppose you have a gallon of milk and a quart of milk and you need to know how many quarts of milk you have altogether. Today, we will learn how to convert a unit of measurement so we can add it to a different unit. To do this, we first convert the larger unit to an equivalent number of smaller units.

Step 1 is to change gallons to quarts. How many quarts are in a gallon? [4] Count the number of Qs in the Gallon G visual below. Now, draw lines to divide the gallon jug into 4 parts and write a Q in each part.

\+ = _____ quarts

Step 2 is to add all the quarts together. Count the total number of quarts and write the answer in the blank.

Today, Jack and his dad are making pavlova, a favorite Australian dessert. If they have 3 quarts and 1 pint of whipping cream, how many total pints of whipping cream do they have?

Step 1 is to change quarts to pints. How many pints are in a quart? [2] Write a "P" on each half of the quart containers.

Step 2 is to add all the pints together. Count the total number of pints in the image and write the answer below.

_____ pints + 1 pint = _____ pints

Another way to complete these problems is to use multiplication. If you had 4 pints and 1 cup of raspberries, how many cups of raspberries would that be altogether?

You know there are 2 cups in every pint, so you can multiply the number of pints by 2 to find the number of cups in 4 pints.

	×		=	
# pints		# cups in a pint		# cups

Next, add all the cups together to find the total.

____ cups + 1 cup = ____ cups

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1. Jack and his dad added 1 quart plus 1 cup of blueberries to their pavlova. How many total cups did they add? (Hint: Find the number of cups in a quart first.)

2. Next they whipped together 3 pints and 1 cup of egg whites. How many total cups did they whip?

LESSON PRACTICE

Convert the larger unit to the smaller unit and then add the amounts. Draw lines on the pictures if needed to help you convert. Write the answer on the line.

2 quarts and 1 pint = _____ pints

1 gallon and 2 quarts = _____ quarts

2 pints and 1 cup = _____ cups

CROCODILE Crunch

Australia is home to many dangerous creatures, including freshwater crocodiles. Freshies, as they are called by the Australians, usually eat small animals such as fish, frogs, turtles, waterbirds, and snakes.

The crocodiles want to eat the largest meal. Convert the larger unit to an equivalent number of smaller units to compare the amounts. Tape the correct crocodile from the Lesson 24 page of the Appendix in the box to show >, <, or =. The first one is done for you.

1 pint 1 cup

1 pt × 2 c = 2 c
in a pint

2 c + 1 c = 3 cups

5 cups

2 gallons 1 quart

2 gal × 4 qt = ___ qt
in a gal

___ qt + 1 qt = ___ qt

8 quarts

4 pints 1 cup

8 cups

2 quarts 1 pint

6 pints

2 quarts 1 pint

5 pints

1 gallon 1 quart

6 quarts

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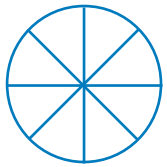
REVIEW & ACTIVITIES

Shade each shape according to the fraction shown. Then circle the unit fraction, which is a fraction that has a numerator of 1.

$\frac{4}{7}$

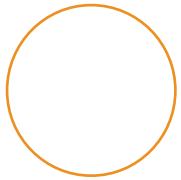
$\frac{3}{5}$



$\frac{1}{8}$

Draw lines to divide the shape into the number of parts shown in the denominator, and then shade each shape according to the fraction shown.

$\frac{2}{3}$



$\frac{3}{4}$

Round to the nearest dollar.

$3.62 ____

$31.47 ____

$124.50 ____

Look at the line of children. Amy is the first in line, starting on the left. Answer the questions below about the other children's positions in the line using ordinal numbers such as 2nd, 3rd, etc.

- What place is Jake in? _____
- Who is second in line? _____
- What place is Erik in? _____
- Who is the eighth in line? _____
- If Faith moves in front of Emma, then what place will Faith be in? _____
- If Jake and Misha leave the line, then what place will Thomas be in? _____
- Who is in line right after Melia? _____

Amy Emma Faith Belle Jake Misha Thomas Melia Calvin Erik

At a wildlife refuge, Jack and Belle counted all the birds they saw in five minutes. This is how many they counted. Count the tally marks and write the totals in the boxes.

Jack:

Belle:

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

6	4	8	5	3	4	3	9
× 6	× 6	× 4	× 5	× 4	× 8	× 5	× 9
____	____	____	____	____	____	____	____

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Lesson 25

ELAPSED TIME AND ESTIMATED TIME

Calendar

Ask the child the following questions:

- How many days are in a week? How many days are in a non-leap year?
- Which month is the 3rd month? Which month is the 7th month?
- How many days are in each month during a non-leap year? Have the child fill out the calendar chart on the back of the array mat.

○ Read to the child: Jack really enjoys spending time with God while reading his Bible. He usually starts studying at 8:15 AM, but today he got a late start. He spent 15 minutes studying and finished at 8:46 AM. To find the start time, should we add or subtract? [subtract] Point to the purple numbers in the box as you explain. Yes! Because the start time happened in the past, we need to count backward. By subtracting 15 minutes from the end time, we find the start time.

finished time	8:46
elapsed time	− :15
start time	

Later, Jack wanted to practice playing the guitar for 30 minutes. If he starts practicing at 9:24 AM, what time will he finish? For this problem, we are looking for a time in the future. Should we add or subtract? [add] Point to the purple numbers in the box as you explain. That's right! We add the 30 minutes he practices to his start time to find the time he will finish.

start time	9:24
elapsed time	+ :30
finished time	

Let's complete a couple more. Have the child complete these problems on a whiteboard.

- Jack started lunch at 12:03 PM. It took 24 minutes for him to eat. What time did he finish eating? Label your answer with AM or PM.
- Jack spent 37 minutes riding his bike. He finished at 3:56 PM. What time did he start? Label your answer with AM or PM.

○ Estimation Game: For fall break Jack's and Kylie's families are visiting Blue Mountains National Park, which is just a short drive from Sydney, Australia. The stunning blue appearance of the mountains is created by oils released by the many eucalyptus trees in the park combined with water vapor and dust.

The families planned their trip by estimating how long each activity would take. Look at the times in the gray box at the top of the next page and make your own estimate for how long each activity will take. Write your guess in the "estimated minutes" box. Then complete the problems below to find the elapsed time. Have the child complete these problems on a whiteboard using subtraction. Write your answers in the "actual minutes" box.

- The cable car ride started at 10:42 AM and ended at 10:55 AM.
- They started their walk to Empress Falls at 11:31 AM and arrived at the falls at 11:53 AM.
- After lunch they took another tour along the scenic walkway to reach one of the giant rock formations in the park. They started at 1:14 PM and finished at 1:45 PM.
- Next, they biked through the forest from 2:13 PM until 2:58 PM.
- Finally, it was time for Jack's favorite part of the day. The hot-air balloon tour started at 4:02 PM and ended at 4:59 PM.

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Blue Mountains ADVENTURE

The activities took these number of minutes:

13 minutes | 22 minutes | 31 minutes | 45 minutes | 57 minutes

Circle the activity that you would most enjoy doing.

Cable Car Ride

545 meters

Estimated Minutes _____ Actual Minutes _____

Scenic Walkway Tour

2.4 kilometers

Estimated Minutes _____ Actual Minutes _____

Hot-Air Balloon Tour

7 kilometers

Estimated Minutes _____

Actual Minutes _____

Walk to Empress Falls

1.5 kilometers

Estimated Minutes _____ Actual Minutes _____

Scenic Bike Tour

3.5 kilometers

Estimated Minutes _____ Actual Minutes _____

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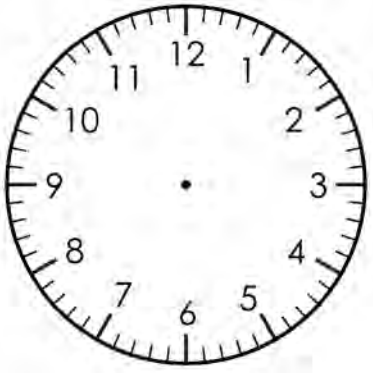
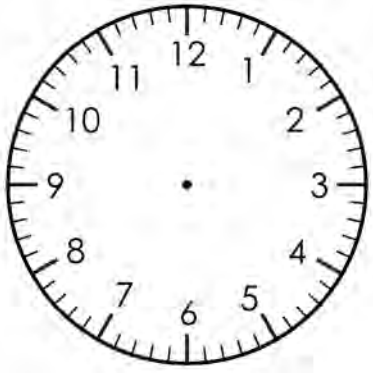
LESSON PRACTICE

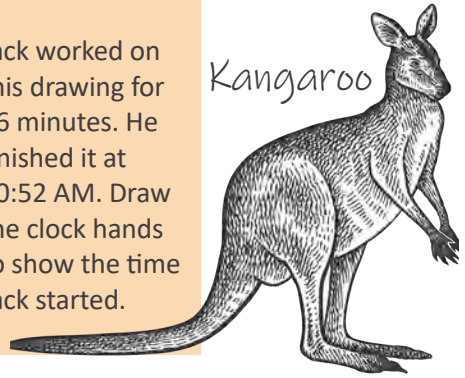
Jack sketched some of the animals he saw in the Blue Mountains. Use a whiteboard to complete the problem, and then draw the clock hands to show the answer.

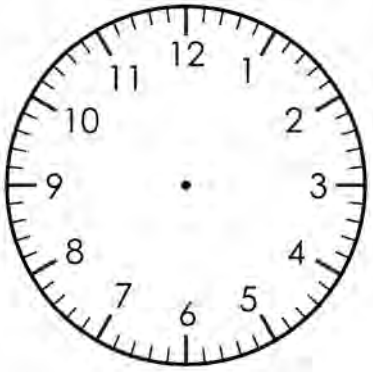


Jack started this drawing at 3:15 PM. He worked for 23 minutes. Draw the clock hands to show the time Jack finished.

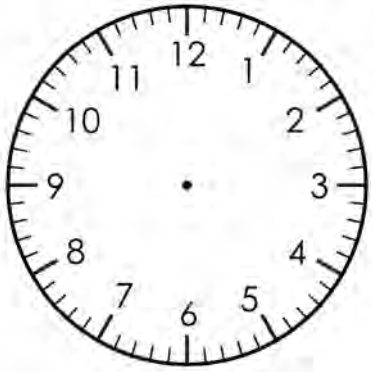


Jack worked on this drawing for 46 minutes. He finished it at 10:52 AM. Draw the clock hands to show the time Jack started.

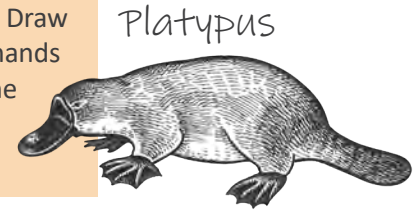


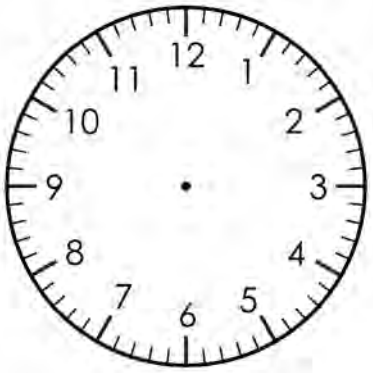


Jack started this drawing at 4:09 PM. He worked for 34 minutes. Draw the clock hands to show the time Jack finished.

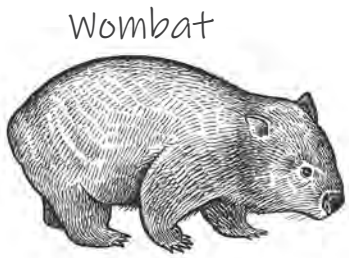


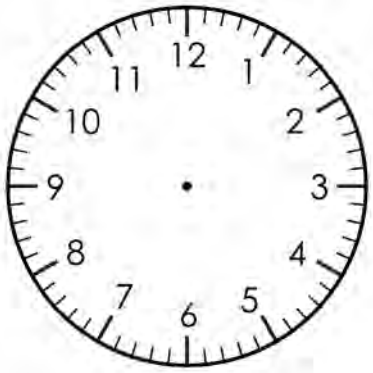
Jack worked on this drawing for 17 minutes. He finished it at 11:44 AM. Draw the clock hands to show the time Jack started.





Jack started this drawing at 5:24 PM. He worked for 29 minutes. Draw the clock hands to show the time Jack finished.





Jack worked for 28 minutes on this drawing. He finished at 12:31 PM. Draw the clock hands to show the time Jack started.

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REVIEW & ACTIVITIES

Convert the larger unit to the smaller unit, and then add the amounts. Draw lines on the pictures if needed to help you convert the units.

3 quarts and 1 pint = _____ pints

2 gallons and 2 quarts = _____ quarts

Round to the nearest dollar.

$72.81	
$43.62	
$21.47	
$64.50	

Lost Digits

Fill in the blanks for the addition problems with the correct numbers to complete the problems.

$$\begin{array}{r} 5\,\square\,3{,}02\,\square \\ +\ 275{,}\,\square 53 \\ \hline \square\,8\,\square{,}479 \end{array}$$

$$\begin{array}{r} 2\,\square\,4{,}1\,\square\,3 \\ +\ \square\,04{,}82\,\square \\ \hline 89\,\square{,}\,\square 89 \end{array}$$

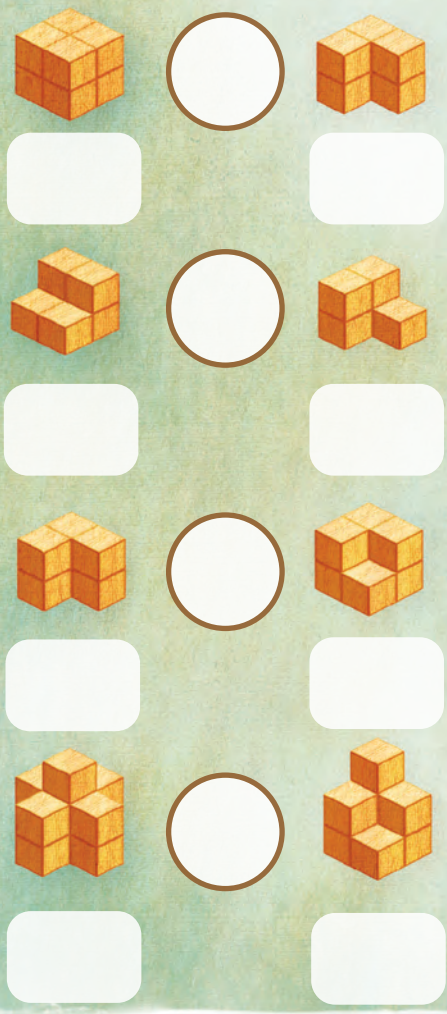
✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 6 \\ \times\ 6 \\ \hline \end{array} \qquad \begin{array}{r} 8 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ \times\ 4 \\ \hline \end{array}$$

BLOCK Logic

Use logic to determine how many blocks are in each image and write the number in the box below. Then, draw a less than, greater than, or equal sign in each circle to compare each set of blocks.



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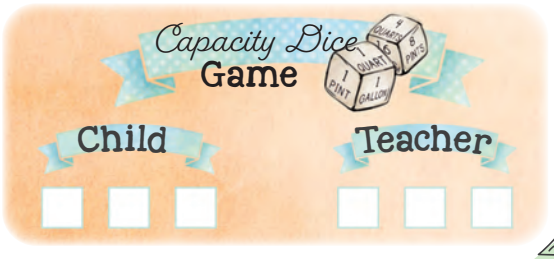
Lesson 26

READING A PICTOGRAPH AND TALLY CHART

Play the "Capacity Dice Game." Refer to page ix for the instructions.



Read to the child: Jack's and Kylie's families spent the afternoon volunteering at a nearby donation center. Jack used a pictograph to sort the number of shirts, pants, skirts, and shoes that were in his pile. A ***pictograph*** is a graph that uses pictures to represent data. It is useful when trying to organize large amounts of information. When reading a graph, it is important to start by reading the title, the categories, the symbols, and the key. Have the child point out these parts on the graph.

In the first pictograph, each star represents 2 items. Count by 2s to find the number of skirts that were donated and write the answer in the box to the right of the stars. Notice that the shirt category is only showing half a star at the end. Pause for the child to locate. Since each full star represents 2 items, how many items do you think a half of a star would represent? [1] Find the number of shirts that were donated by counting by 2s until you reach the last complete star. Then add one more for the half star. Write the answer in the box.

How many pairs of pants and shoes were donated? Count the stars and fill in the answer.

Read to the child: Kylie used a ***tally chart*** to organize each type of clothing that was in her pile. This type of graph is used to collect data quickly and efficiently. Filling in a chart with marks representing numbers is faster than writing out words or numbers.

The title and categories are the same as the pictograph, but the tally chart uses tally marks as a symbol and does not require a key. You can count by 5s when you see one full set or by 10s when you see two groups of 5. Count the marks and write the number of items Kylie had in her pile in the boxes to the right.

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LESSON PRACTICE

A pictograph and tally chart were used to record the number of most common birds to Australia that were spotted on two separate days. Use the graphs to answer the questions.

Australian Birds—Day 1

= 10 birds

How many birds were spotted on Day 1? Look at the key, and then use skip counting to count birdhouses. (Hint: Half of 10 is 5.) Write the answers in the boxes to the right of each row.

1. How many total birds were seen?

   ____ + ____ + ____ + ____ = ☐

2. Which type of bird was seen the most?

3. How many fewer rainbow lorikeets were seen than the sulphur-crested cockatoo?

   ____ − ____ = ☐

Australian Birds—Day 2

How many birds were spotted on Day 2? Skip count by 5s for every set of tally marks. Write the answers in the boxes to the right of each row.

1. How many total birds were seen?

   ____ + ____ + ____ + ____ = ☐

2. Which type of bird was seen the least?

3. How many black-shouldered kites and purple swamphens were there combined?

   ____ + ____ = ☐

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REVIEW & ACTIVITIES

Fill in the missing number words.

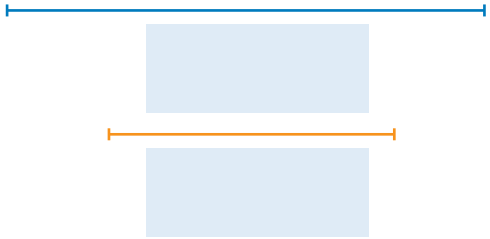
692: _____ hundred _____-two

514: five _____ fourteen

367: _____ hundred sixty-_____

928: nine hundred _____-_____

Measure each line to the nearest half inch. Write the measurements in the boxes.



Jack spent 38 minutes sketching a kookaburra. He finished his drawing at 2:42 PM. What time did he start?

finish time 2:42
elapsed time – :
start time

Jack started sketching a cockatiel at 4:32 PM. He worked on it for 24 minutes. What time did he finish?

start time 4:32
elapsed time + :
finish time

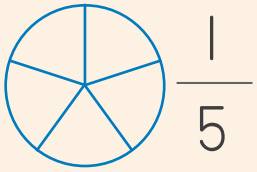
Compare the amounts using the <, >, or = symbols.

3 quarts + 1 pint ◯ 6 pints

2 gallons + 1 quart ◯ 9 quarts

Shade each shape according to the fraction shown. Circle the one that is a unit fraction.

$\frac{2}{7}$



$\frac{1}{5}$

$\frac{6}{8}$

Circle the correct answers.

- Which month comes before June?
  April | July | August | May
- What is the 6th month of the year?
  August | June | July | May
- Which day comes before Sunday?
  Monday | Friday | Saturday

Below is a list showing the number of bird species in six different countries. Round each number to the nearest ten.

Australia: 831 _____

Guatemala: 768 _____

Russia: 804 _____

Round each number to the nearest hundred:

China: 1,413 _____

Uganda: 1,056 _____

India: 1,349 _____

✧ Multiplication Fact Practice ✧

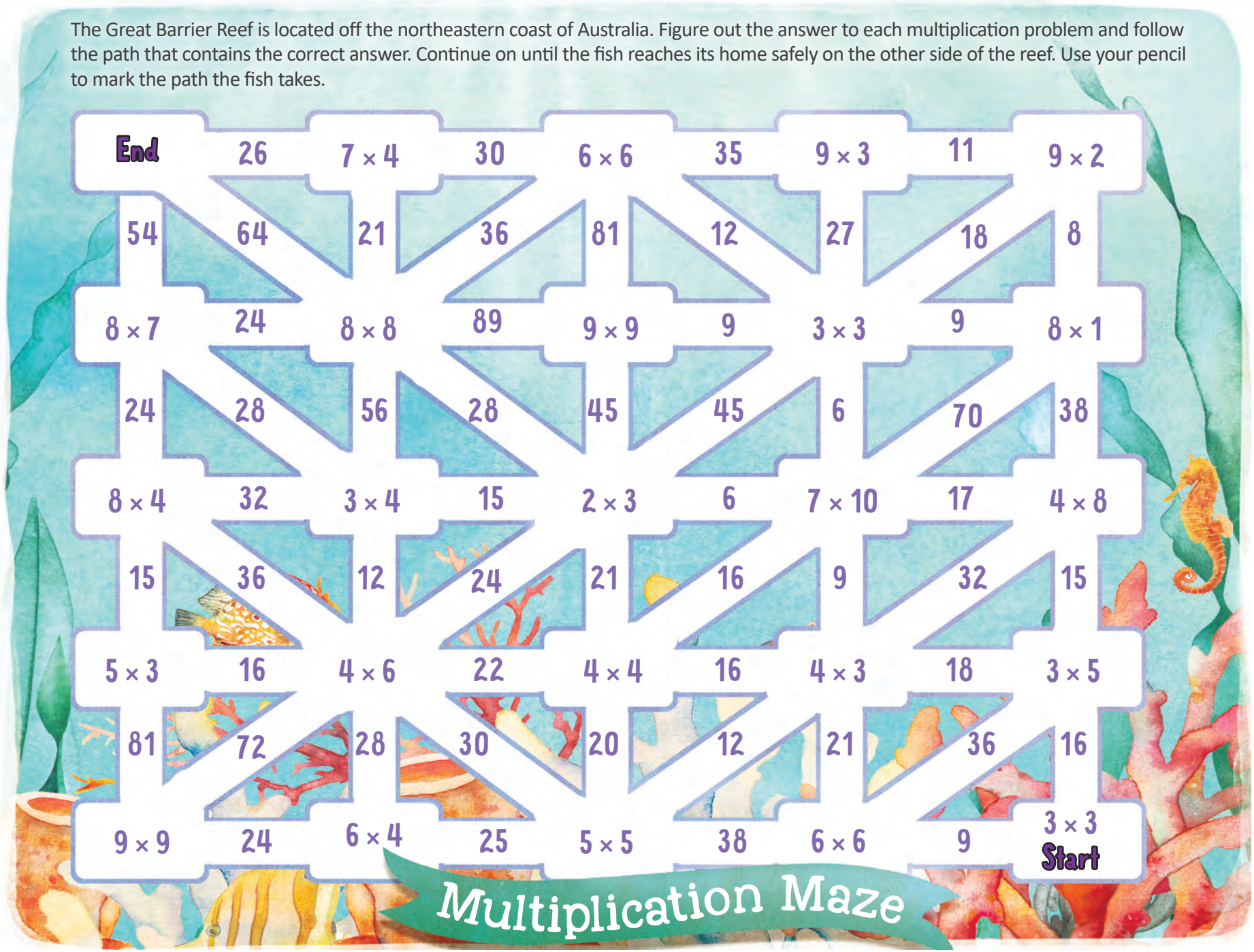
Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section. ☐

9	5	8	3	6
× 9	× 5	× 8	× 3	× 6

© Jenny Phillips

Multiplication Maze

The Great Barrier Reef is located off the northeastern coast of Australia. Figure out the answer to each multiplication problem and follow the path that contains the correct answer. Continue on until the fish reaches its home safely on the other side of the reef. Use your pencil to mark the path the fish takes.



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Lesson 27

LITERS AND MILLILITERS

Skip Counting

Have the child continue the skip counting patterns until 1,000.

200, 250, . . . 1,000

600, 625, 650, . . . 1,000

Read to the child: Liters and milliliters are metric units used to measure volume in countries outside the United States. ***Volume*** is the amount of space an object or liquid takes up. A milliliter, abbreviated as mL (lowercase *m* and uppercase *L*), is a unit used to measure small amounts of liquid. One milliliter is about the same as 20 drops of water. A liter, abbreviated as an uppercase *L*, is a unit used to measure larger amounts of liquid. One liter can fill a large water bottle. Write the correct abbreviation under each unit.

1 milliliter

1 liter

Each picture shows a different volume of liquid. Choose the most reasonable unit of measurement to use for each picture by drawing a line to either mL or L.

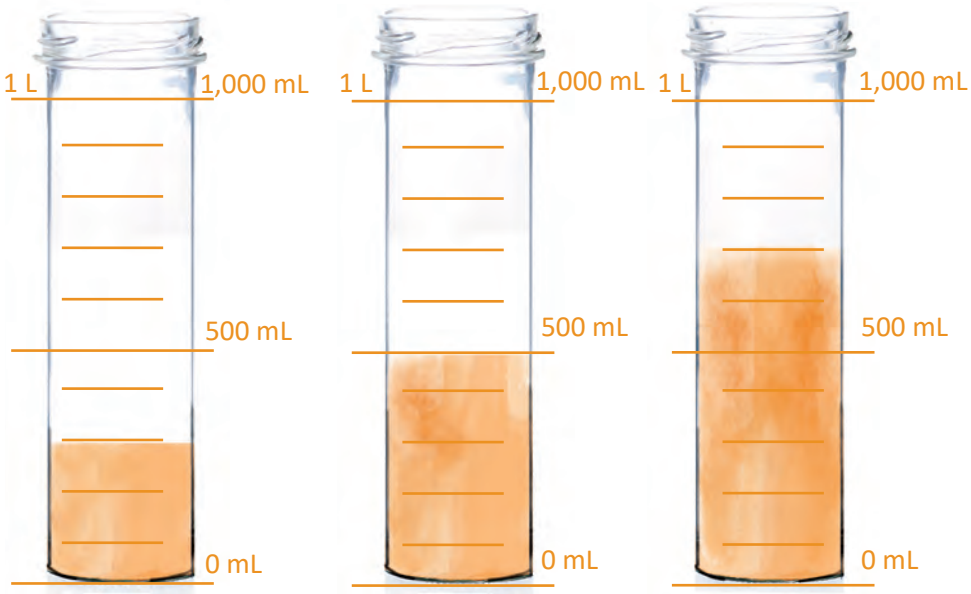
mL

L

Have you ever heard the word millennium? Millennium means 1,000 years. The prefix "milli-" means thousand and helps us remember that there are 1,000 milliliters in 1 liter. Sometimes it may be necessary to convert units. How many milliliters are in 2 liters? [2,000] How many milliliters are in 3 liters? [3,000] If I have 4,000 mL, how many liters would that be? [4] If we had 5,000 mL, how many liters would that be? [5] Now, let's fill in the blank spaces in the table here. The first one is done for you.

L	mL
1	1,000
2	
3	
	4,000

How much juice is in these containers? Starting at the bottom, skip count by 100s until you reach the line at the same level as the juice. Write the answer in the box including the mL unit label.



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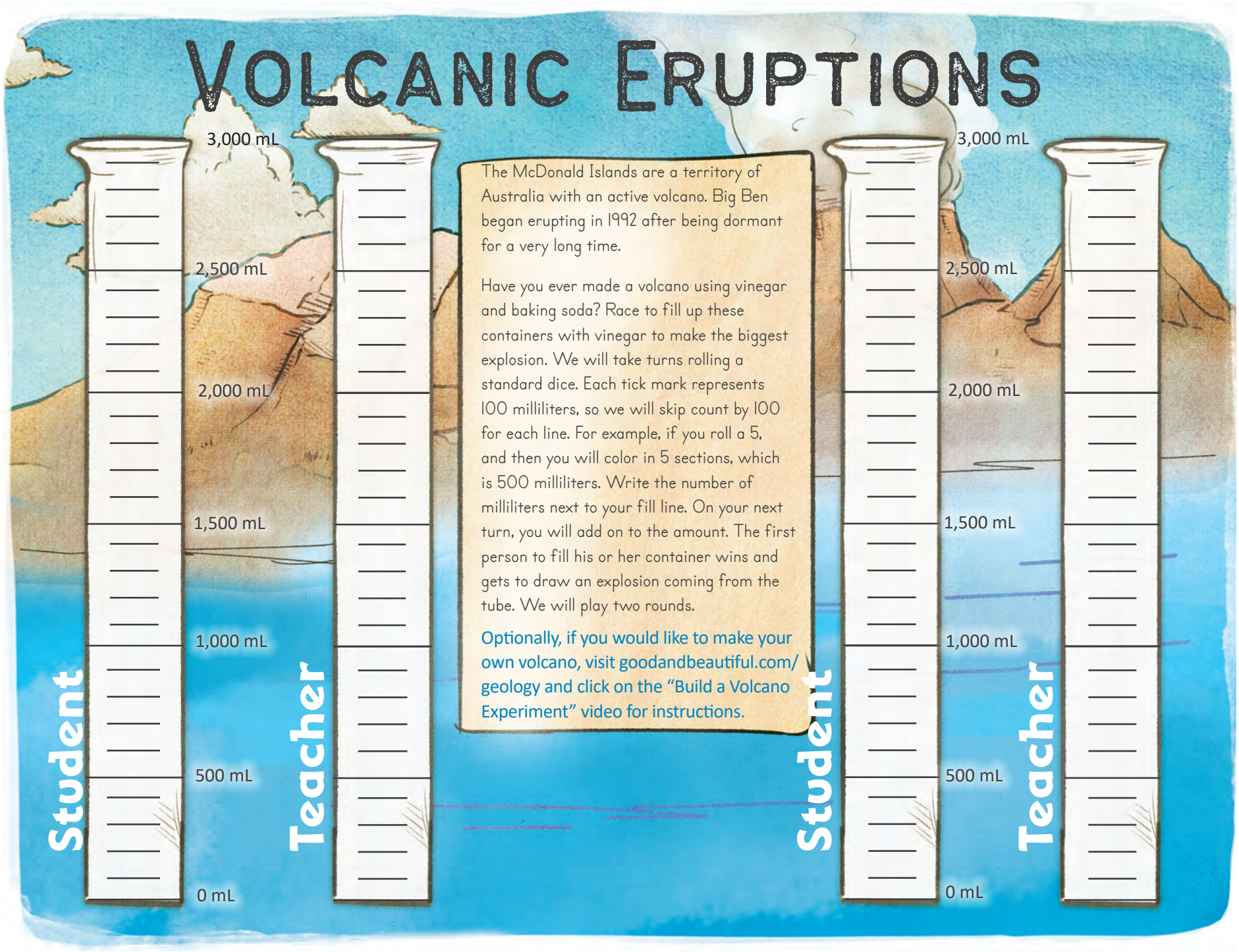
Volcanic Eruptions



The McDonald Islands are a territory of Australia with an active volcano. Big Ben began erupting in 1992 after being dormant for a very long time.

Have you ever made a volcano using vinegar and baking soda? Race to fill up these containers with vinegar to make the biggest explosion. We will take turns rolling a standard dice. Each tick mark represents 100 milliliters, so we will skip count by 100 for each line. For example, if you roll a 5, and then you will color in 5 sections, which is 500 milliliters. Write the number of milliliters next to your fill line. On your next turn, you will add on to the amount. The first person to fill his or her container wins and gets to draw an explosion coming from the tube. We will play two rounds.

Optionally, if you would like to make your own volcano, visit goodandbeautiful.com/geology and click on the "Build a Volcano Experiment" video for instructions.

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LESSON PRACTICE

Choose the more reasonable unit of measurement for the volume of each object by drawing a line from the picture to either mL or L.

mL

L

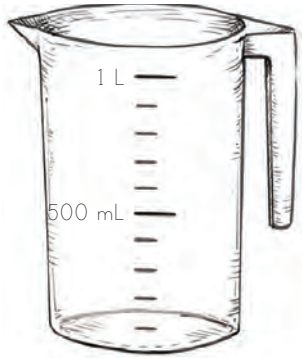
These jugs show how much liquid they can hold in milliliters. Write the equivalent amount in liters in each box below. Include the unit label.

2,000 mL

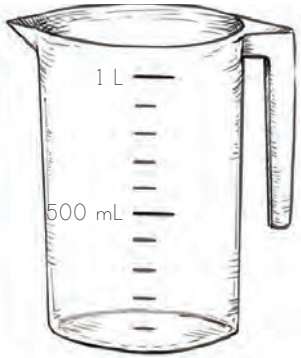
3,000 mL

5,000 mL

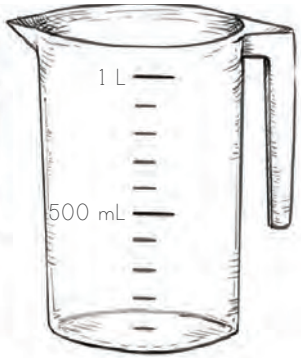
Color in the pitchers to show the correct amount of liquid.



300 mL

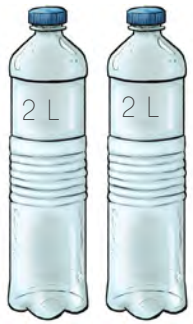


900 mL



700 mL

Add the number of liters in each group together, and then write the equivalent amount in milliliters in each box below. Include the unit label.



Fill in the blank with the correct conversion.

9,000 mL = _____ L

7 L = _____ mL

5,000 mL = _____ L

10 L = _____ mL

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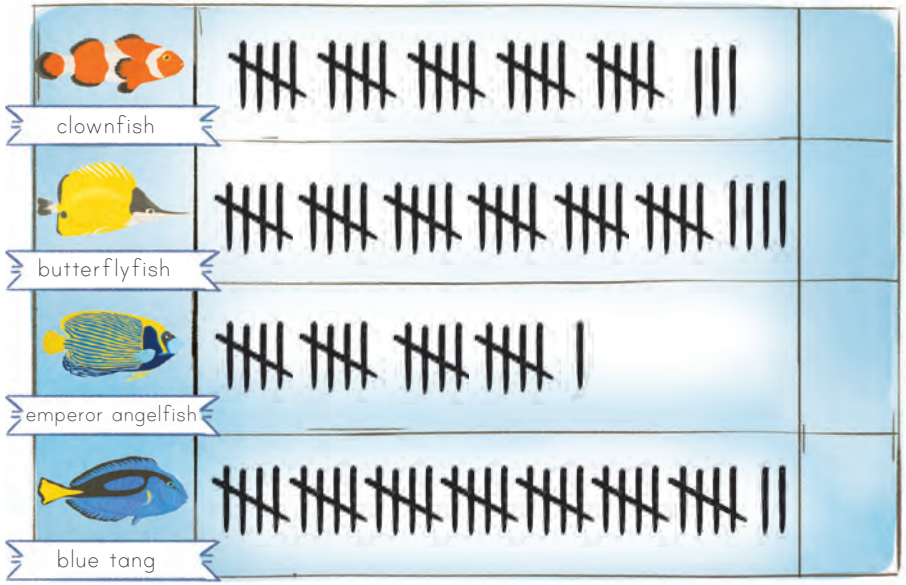
REVIEW & ACTIVITIES

A tally chart was used to record the number of fish seen in the Great Barrier Reef, off the coast of Australia. Use the chart to answer the questions.

Fish of the Great Barrier Reef



1. How many of each fish was seen? Skip count by 5s for every set of tally marks. Write the answers in the spaces to the right of the marks.
2. How many total fish were seen? (Hint: Add each tally mark total.)

_____ + _____ + _____ + _____ = ☐

3. Circle the type of fish that was seen the most often.

The fish in the reef were observed for 12 minutes starting at 8:41 AM. What time did the observation of the fish finish?

start time :

elapsed time + :

finish time

Fill in the blank with either <, >, or = to make the comparison statement true. Draw lines on the pictures if needed to help you compare the groups.

Shade in the shape to show the fraction.

$\frac{1}{4}$

$\frac{2}{3}$

Mystery Number

Find Kylie's mystery number using the clues below, and then write it in the box.

- Her number has 4 digits.
- The ones digit is the number of ears you have.
- The tens digit is 5 more than the ones digit.
- Kylie's mystery number is a **palindrome**. That means it is the same number written forward or backward (like the word "noon").

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set A for 10 minutes or more. Then complete the problems in this section. ☐

9	4	3	4	6	4
× 9	× 6	× 5	× 8	× 6	× 3

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Lesson 28

ADDING AND SUBTRACTING ROUNDED AMOUNTS OF MONEY

Measurement & Skip Counting

Have the child work on memorizing this sentence.

There are 2 cups in a pint, 2 pints in a quart, and 4 quarts in a gallon.

- Skip count backward by 3s from 33 to 0.

○ Read to the child: Jack's uncle owns a roadside didgeridoo [did–jur–ee–DO] stand. These Australian instruments were originally made from hollow tree branches. One bright spring day, Jack was helping his uncle at the stand. A woman came by with $100 in her purse and wanted to buy the three instruments listed below. Does she have enough money to buy all three? Help Jack quickly round the price of each instrument to the nearest dollar and write the amounts in the blue boxes. Then add the amounts together on the whiteboard. According to your estimate, can the woman buy all three didgeridoos for $100? [no] Which two instruments could she buy with $100? Although we always have to give the correct amount of money for purchases, rounding can help us quickly see the total cost of items and give us a good idea if we can purchase something.

$38.65

$47.49

$64.15

Next, a man came by and wanted to buy two certain didgeridoos. He had $100 but needed to keep at least $20 to buy gas to fill his tank. How much money can he spend on the two instruments? [$80] To help Jack figure out if the man can buy the two instruments, round the price of each instrument to the nearest dollar and write the amounts in the blue boxes. Then subtract the two amounts from $80 on a whiteboard. Can he buy the two instruments and have at least $20 left? [yes]

$37.54

$39.89

○ Read to the child: On the whiteboard round each of the amounts to the nearest dollar, and then write the problems vertically and complete them.

$45.49 – $20.32 $43.76 + $31.50

○ **Game—Didgeridoo Collection:** Have the child cut out the didgeridoo boxes on the dashed lines on the next page. Read to the child: Let's play a game called "Didgeridoo Collection Game." First, let's read the instructions:

1. Put all the boxes you cut out in a bowl or bag.
2. For each round see how many didgeridoos you can collect without going over $100. Your turn is first. Draw a didgeridoo from the bowl or bag. On the whiteboard round the cost of the instrument to the nearest dollar. You can choose to keep that one instrument and stop, or you can draw another. If you draw another, round the cost and add it to the cost of the first instrument you drew. Continue on as long as you like or stop when you like, but if you go over $100, you do not collect any instruments for the round. If you stop before you go over $100, write the number of instruments you collected in the Round 1 box. Once your turn is over, put all the instruments back in the bowl or bag.
3. I will do the same thing on my turn for Round 1. Then you complete Round 2 and so on.
4. Once we have gone through all the rounds, we will add up the total number of instruments we each collected and see who collected the most.

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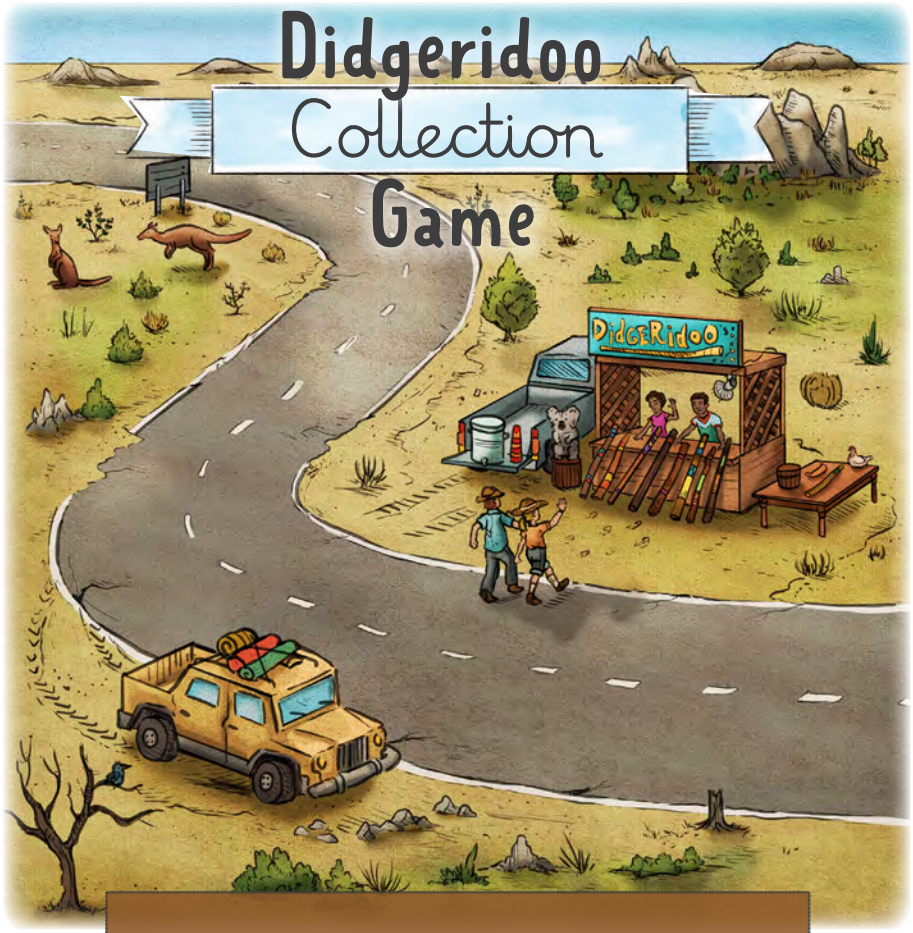

Student	Parent/Teacher
Round 1:	Round 1:
Round 2:	Round 2:
Round 3:	Round 3:
TOTAL: _____	TOTAL: _____

$37.54

$28.50

$40.18

$50.49

$35.24

$31.67

$19.79

$50.50

$25.43

$39.61

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This section is blank for double-sided printing and cutting purposes.

LESSON PRACTICE

A boomerang is a curved throwing stick used mainly by Aboriginal peoples of Australia for hunting. Some are designed to return to the person who throws them.

Complete the problems below to find a riddle about boomerangs. For each problem round the amount to the nearest dollar, write the problem vertically, and complete by adding or subtracting as needed. Use the answers from the problems to fill in the blanks with the correct letters at the bottom.

$98.89 − $19.80 K	$18.29 − $2.15 T	$146.60 − $4.50 C
$88.10 + $1.25 S	$72.49 + $66.36 A	$13.69 + $13.29 I

What do you call a boomerang that doesn't come back when you throw it?

$138	$89	$16	$27	$142	$79

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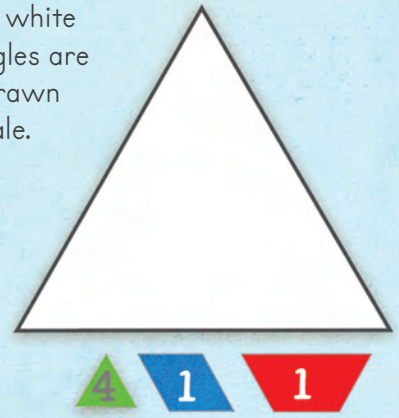
REVIEW & ACTIVITIES

Geometric Games

Create a triangle using the specified number of shapes from the math box.

Note: white triangles are not drawn to scale.



Jack arrived at his uncle's store at 4:16 PM. He spent 27 minutes in the store. What time did he leave the store?

start time	4:16
elapsed time	+ :27
finish time	

Compare the amounts using the <, >, or = symbols.

2 quarts + 1 pint ◯ 6 pints

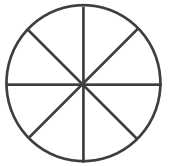
3 gallons + 1 quart ◯ 9 quarts

Use a paper clip and the tip of your pencil to make a spinner on the coin below. Flick the paper clip to spin, and then write the numbers in the blanks and complete the problems.

10 × ___ =	10 × ___ =	10 × ___ =	10 × ___ =
2 × ___ =	2 × ___ =	2 × ___ =	2 × ___ =

Shade each shape according to the fraction shown.

1/6

 3/8

Multiplication Fact QUIZ – Set A

Practice multiplication facts Set A for 10 minutes. Then complete the problems in this section. Have your parent or teacher record the ones you got right on the Mastery Chart on page viii. Parent/Teacher Note: Also quiz the child on the 0s, 1s, 2s, and 10s facts and have him or her answer aloud.

4 × 6	3 × 3	6 × 6	5 × 3
8 × 4	8 × 8	3 × 4	5 × 5
9 × 9	6 × 4	3 × 5	4 × 8
4 × 3			

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LESSONS 29-30

UNIT ASSESSMENT

Parent/Teacher

Read the following information aloud to the child: Unit assessments give you practice with the math concepts learned in this unit, without having you overpractice concepts that you have mastered. These assessments also give you practice working on math problems for an extended period of time. This helps you extend focus and attention span and to be better prepared for any type of testing you will have to do in the future. Here are some tips. First, make sure to always read the instructions carefully. Sometimes you can get answers wrong simply because you did not understand the instructions. Second, do not rush through exercises you think you already know. Instead, make sure to do your work carefully. Sometimes you can get answers wrong, even though you understand the concept, just because you rushed.

For Lesson 29, have the child complete all the exercises with PURPLE headers only. At this level, you may need to read some of the instrutions. Correct the work. If the child makes one or more mistakes in a section, explain the concept, and check the orange "Additional Practice" checkbox for that section.

For Lesson 30, have the child complete all the ORANGE sections **that are checked**. If the child still makes multiple mistakes, make sure the child understands why. All the principles will be reviewed again in upcoming units. If the child has only a few or no orange sections to practice, the child may spend time doing math games or move on to the next lesson.

Note: All concepts in Unit 1 will be reviewed throughout the rest of the course, but less frequently.

Student

NUMBERS THROUGH THE HUNDRED THOUSANDS

Circle the word form for each number.

82,097

a) eighty-two thousand, ninety-seven

b) eighty-two thousand, nine hundred seven

401,365

a) four zero one, three hundred sixty-five thousand

b) four hundred one thousand, three hundred sixty-five

Write the numbers in standard form.

200,000 + 70,000 + 4,000 + 500 + 30 + 8

nine hundred sixty-one thousand, two hundred fifty-five

Additional Practice

Circle the word form for each number.

36,521

a) thirty-six, five hundred twenty-one

b) thirty-six thousand, five hundred twenty-one

968,731

a) ninety-six eight, seven hundred thirty-one thousand

b) nine hundred sixty-eight thousand, seven hundred thirty-one

Write the number in standard form.

600,000 + 9,000 + 800 + 3

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MULTIPLICATION

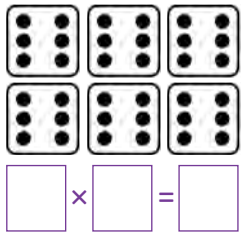
Use mental math to complete the following problems:

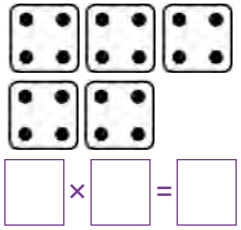
0 × 4 = _____ 19 × 1 = _____ 10 × 2 = _____

99 × 0 = _____ 2 × 8 = _____ 200 × 1= _____

5,000 × 1 = _____ 7 × 10,000 = _____

Write a multiplication problem and complete it to find out how many dots there are.





Additional Practice

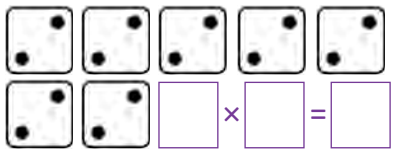
Use mental math to complete the following problems:

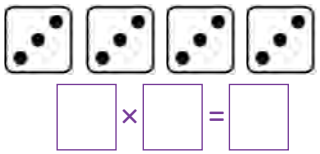
0 × 7 = _____ 35 × 1 = _____ 10 × 9 = _____

88 × 0 = _____ 2 × 6 = _____ 5 × 100 = _____

7 × 1,000 = _____ 2 × 10,000 = _____

Write a multiplication problem and complete it to find out how many dots there are.





ROUNDING TO THE NEAREST TEN OR HUNDRED

Round to the nearest TEN.

452	191	808	765

Round to the nearest HUNDRED.

2,367	285	7,614	851

Circle the numbers that would round up to 10.

0 1 2 3 4 5 6 7 8 9

Additional Practice

Round to the nearest TEN.

758	375	404	635

Round to the nearest HUNDRED.

7,249	347	3,127	461

Circle the digits that will round down to zero.

0 1 2 3 4 5 6 7 8 9

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DATA: READING PICTOGRAPHS AND TALLY CHARTS

Fill in the last columns of the pictograph and tally charts. Then answer the questions below.

Australia vs. India

= 10 runs

Inning 1		
Inning 2		
Inning 3		
Inning 4		

How many runs were scored in Innings 2 and 3 combined?

How many more runs did the team score in Inning 1 than in Inning 4?

Top Worship Songs in Australia

Good, Good Father		
What a Beautiful Name		
King of My Heart		
Bless the Lord		

How many total votes were for "King of My Heart" and "Bless the Lord"?

How many total votes were collected?

Additional Practice

Fill in the last columns of the pictograph and tally charts. Then answer the questions below.

Aussie Season Touchdowns

= 4 touchdowns

Team 1		
Team 2		
Team 3		
Team 4		

How many touchdowns did the teams score altogether?

How many more touchdowns did Team 2 score than Team 3?

Outdoor Observations

How many more butterflies were seen than turtles?

How many birds and ladybugs were counted altogether?

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TWO-STEP STORY PROBLEMS

Complete the problems. Circle what you know and underline the question.

There were 85 muntries (a native Australian fruit) on the plate. Jack ate 22 muntries, and Kylie ate 18 muntries. How many muntries were left on the plate?

The next day Jack's mom washed 42 muntries and put them on a plate. Then she washed 55 more muntries and added them to the plate. She accidentally dropped 14 off the plate. How many muntries remain on the plate?

Additional Practice

Complete the problems. Circle what you know and underline the question.

Jack's mom bought 24 finger limes (a native Australian fruit). She used 15 for one recipe and 8 for another. How many finger limes were left?

There were 17 finger limes in the fridge. Jack used 6 to make a lime drink and put 4 into his compost pile because they were rotten. How many finger limes were left in the fridge?

ADDITION AND SUBTRACTION WITH REGROUPING

Add or subtract to complete each problem. Include the comma.

1,205 + 4,317	5,142 + 3,790	2,646 + 6,813
8,065 − 5,723	6,917 − 3,245	4,841 − 2,629

Additional Practice

Add or subtract to complete each problem. Include the comma.

6,105 + 3,255	1,169 + 4,715	5,323 + 2,491
9,076 − 1,522	7,661 − 4,512	8,496 − 3,725

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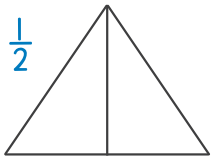
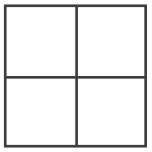
FRACTIONS

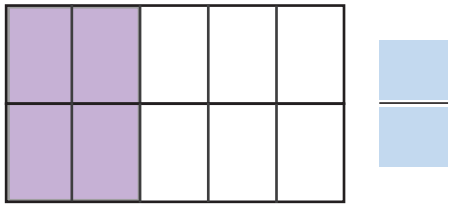
Shade each shape according to the fraction shown.

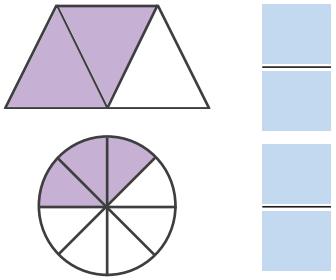
$\frac{1}{2}$ 

$\frac{1}{6}$

$\frac{1}{4}$ 

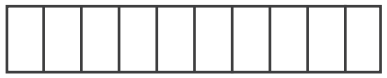
Write a fraction to show the amount that is shaded in each shape.

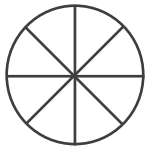


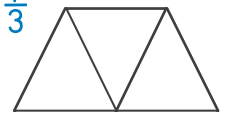


Additional Practice

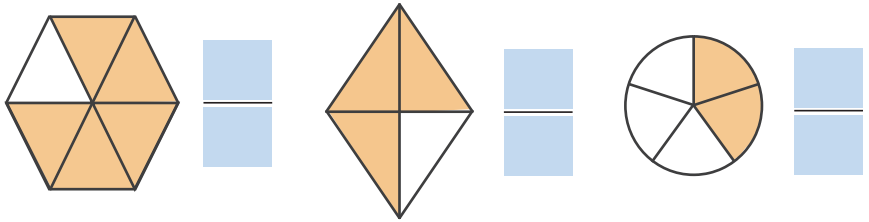
Shade each shape according to the fraction shown.

$\frac{1}{10}$ 

$\frac{1}{8}$ 

$\frac{1}{3}$ 

Write a fraction to show the amount that is shaded in each shape.

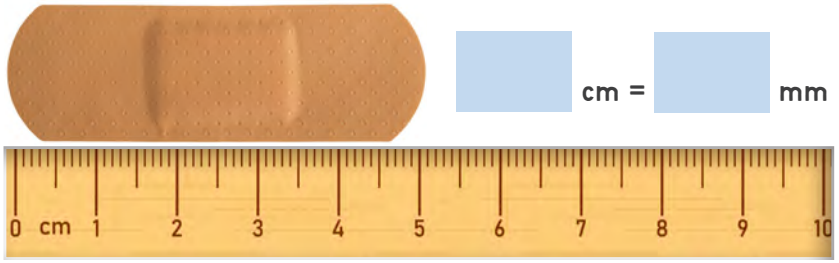


MEASUREMENT

Circle the more reasonable measurement for each item.

The length of a dollar bill	6 inches | 6 feet
The height of a person	5 feet | 5 yards
The length of a toothbrush	15 miles | 15 centimeters
The distance of a drive to a nearby city	10 miles | 10 inches
A large pitcher of orange juice	2 milliliters | 2 liters
The length of a river	220 centimeters | 220 kilometers

What is the length of the bandage in centimeters and millimeters?



Fill in the blank with the correct conversions.

1 cm = _____ mm

1 L = _____ mL

1 gallon = _____ quarts

1 pint = _____ cups

Continued on the next page ≫→

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MEASUREMENT CONTINUED

The pictures below show the amount of each type of drink that was provided at the church picnic. Complete the conversions to answer the questions. Draw lines on the images if needed.

How many total pints of lemonade are there?

_____ **pints**

How many quarts of water are there?

_____ **quarts**

How many cups of milk are there?

_____ **cups**

Use your measuring tape to measure the lines in inches or centimeters.

_____ **inches**

_____ **cm**

Fill in the blanks with the correct abbreviations.

kilometer = _____ **millimeter = _____**

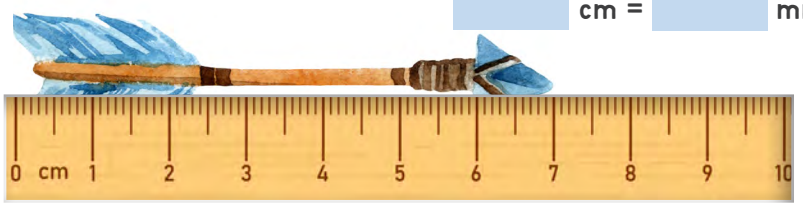
Additional Practice

Circle the more reasonable measurement for each item.

The length of a standard-sized paper clip	3 meters | 3 centimeters
The height of a lighthouse	200 feet | 200 inches
The length of a ladybug	4 yards | 4 millimeters
A pot of soup for a family of 8	4 quarts | 4 cups
A spoonful of medicine	15 milliliters | 15 liters
A bathtub filled with water	30 gallons | 30 cups

What is the length of the arrow?

_____ **cm =** _____ **mm**



Use your measuring tape to measure the line in inches.

_____ **inches**

Fill in the blank with the correct symbol (<, >, or =) to make the comparison true.

1 tablespoon ◯ **2 teaspoons**

2 quarts ◯ **3 pints**

1 kilometer ◯ **1,000 meters**

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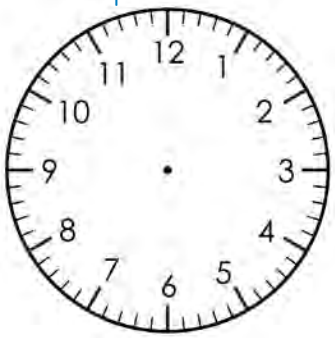
TELLING TIME TO THE MINUTE, TIME EXPRESSIONS, AND ELAPSED TIME

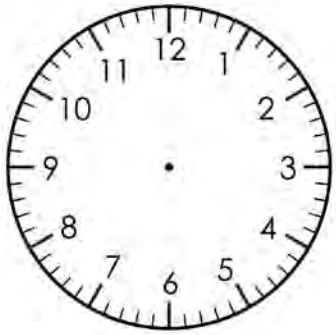
Draw hands on the clock to match the time written above each clock. Then circle the appropriate event for the time shown.

Half past 8 AM



make your bed
put on pajamas

Quarter to 7 PM



watch the sunrise
watch the sunset

Read each clock and write the time to the nearest minute.

____ : ____

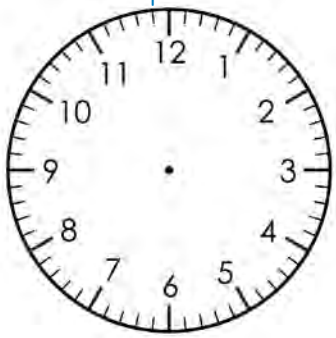
____ : ____

Jack's mom put the pastries in the oven at 3:03 PM and took them out at 3:34 PM. How long were the pastries in the oven?

Additional Practice

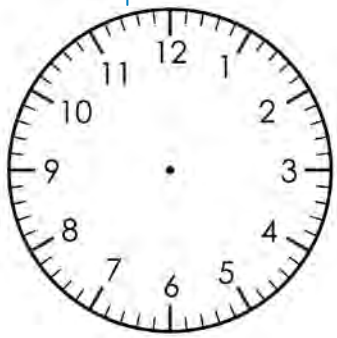
Draw hands on the clock to match the time written above each clock. Then circle the appropriate event for the time shown.

Quarter past 12 PM



go to bed
eat lunch

Half past 6 PM



eat breakfast
eat dinner

Read each clock and write the time to the nearest minute.

____ : ____

____ : ____

Jack worked on his project from 1:08 PM to 1:55 PM. How long did Jack work on his project?

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UNIT 2 OVERVIEW

LESSONS 31-60

Extra Supplies Needed

- ○ set of dry measuring cups
- ○ 2 cups of flour in a medium bowl
- ○ optional tray or plate

New Concepts Taught

- ○ Adding and Subtracting Inches and Feet
- ○ Conversions Between Units of Measurement
- ○ Creating Tables and Charts
- ○ Expanded Form to a Million
- ○ Fractions Comparing and Ordering
- ○ Fractions Equal to One and Naming
- ○ Fractions on a Number Line
- ○ Line Graphs
- ○ Mixed Numbers
- ○ Rounding and Subtracting Money
- ○ Subtraction Across Zeros

Concepts Reviewed and Expanded Upon

- ○ Adding and Subtracting Large Numbers
- ○ Commutative Property of Multiplication
- ○ Counting, Adding, and Subtracting Money
- ○ Equivalent Fractions
- ○ Fraction Halves
- ○ Line of Symmetry
- ○ Number Patterns
- ○ Reading a Table and Bar Graph
- ○ Telling Time
- ○ Temperature Using a Thermometer
- ○ Venn Diagrams
- ○ Weight Measurements

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Lesson 31

METRIC LENGTH CONVERSIONS

Mental Math

Use subtraction to find the elapsed time.

Start	End	Start	End
6:12 AM	6:46 AM	3:31 PM	3:54 PM

Read to the child: Twelve-year-old Winnie and her brother, 9-year-old Tombe, live near Lake Victoria in Uganda. Today, Tombe and Winnie are going fishing on the lake with their father. Lake Victoria is the largest lake in Africa and the third-largest lake in the world. The lake is home to many unique species of fish, such as these tiny cichlids. Winnie shared some facts about the lake with Tombe.

Circle the most reasonable labels for the measurements she shared.

Lake Victoria is 322 _____ long.	cm	m	km
Lake Victoria has a depth of 80 _____.	mm	cm	m
The cichlid fish are about 5 _____ long.	mm	cm	km

Converting between units of measurement is a useful skill. We will fill in basic conversions in the box to help us with this concept. The prefix ***cent*** means hundred. Just like there are 100 cents in a dollar, there are 100 centimeters in a meter. Write 100 in the blank next to cm. The prefix ***kilo*** means thousand. There are 1,000 meters in a kilometer. Write 1,000 in the blank next to m.

Metric Length
1 m = ____ cm
1 km = _____ m

Tombe reeled out 5 meters of fishing line. How long is his fishing line, measured in centimeters? There are 100 centimeters (cm) in 1 meter, so count 5 groups of 100 centimeters (cm) and write the answer on the blank. Or multiply 5 by 100 to find the answer.

100 cm (1 m) + 100 cm (1 m) + 100 cm (1 m) + 100 cm (1 m) + 100 cm (1 m) = _____ cm

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Five meters is equal to 500 centimeters.

A table can also be used to convert between units. The first row shows that 1 meter is equal to 100 centimeters. Fill in the table with the conversions.

Meters	Centimeters
1	100
2	200
	300
	400
	500
	600

If Dad's fishing boat is 600 centimeters long, how many meters is it? Use the chart to find the answer. Pause for response. Right, 600 centimeters is equal to 6 meters.

Later that day, Winnie estimated the distance they traveled around the lake. Each time they rowed the boat, they traveled about 1 meter forward. She estimated that they traveled about 5,000 meters. If 1,000 m = 1 km, how many kilometers did they travel? Fill in the table to find the answer.

Kilometers	Meters
1	1,000
	2,000
	3,000
	4,000
	5,000

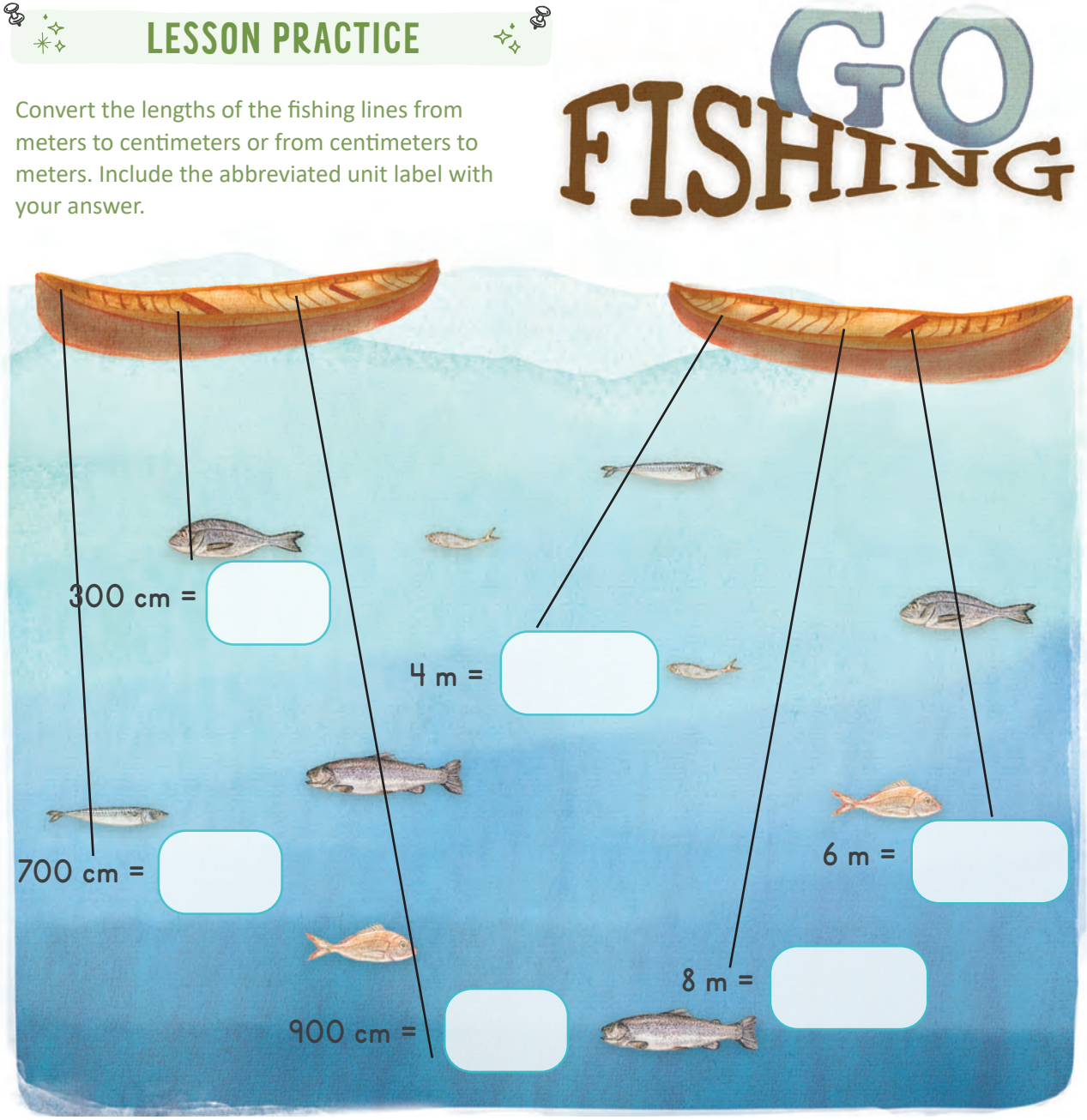
Suppose that on another day Tombe's father traveled 3 kilometers. How many meters is that? You can count groups of 1,000 meters or multiply 3 × 1,000 to solve.

1,000 m + 1,000 m + 1,000 m = _____ m

1 km 1 km 1 km

LESSON PRACTICE

Convert the lengths of the fishing lines from meters to centimeters or from centimeters to meters. Include the abbreviated unit label with your answer.



Convert the lengths to either meters or kilometers.

2,000 m = _____ km 5,000 m = _____ km 4 km = _____ m 6 km = _____ m

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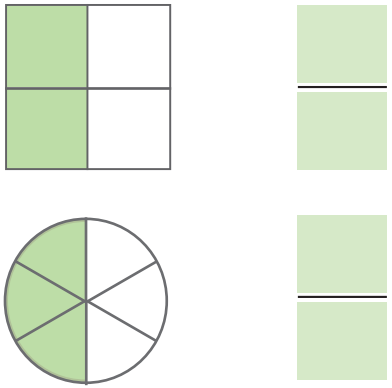
REVIEW & ACTIVITIES

Expanded FORM

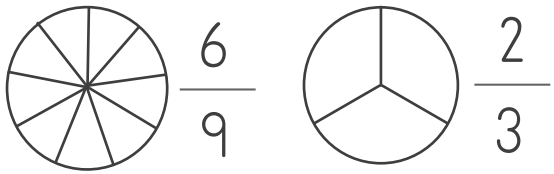
Lake Victoria has an area of 25,564 square miles. Write this number in expanded form.

The White Nile River, which begins in Uganda, is a tributary of the Nile and is 2,299 miles long. Write this number in expanded form.

Write the fraction for the shaded parts of each shape.



Shade each shape according to the fraction shown.



Below is a list showing the approximate number of freshwater fish species in six different countries.

Round each number to the nearest TEN.

Uganda: 92 _____

Guatemala: 166 _____

Australia: 279 _____

Round each number to the nearest HUNDRED.

China: 1,323 _____

Canada: 1,197 _____

India: 939 _____

Figure out the skip-counting patterns and write the missing numbers.

40, _____, 48, 52, _____, _____ ★ 50, _____, 40, 35, _____, 25, _____, _____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

9 × 5	4 × 4	7 × 4	5 × 4	3 × 7	7 × 8	3 × 9	9 × 4

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Lesson 32

USING A THERMOMETER

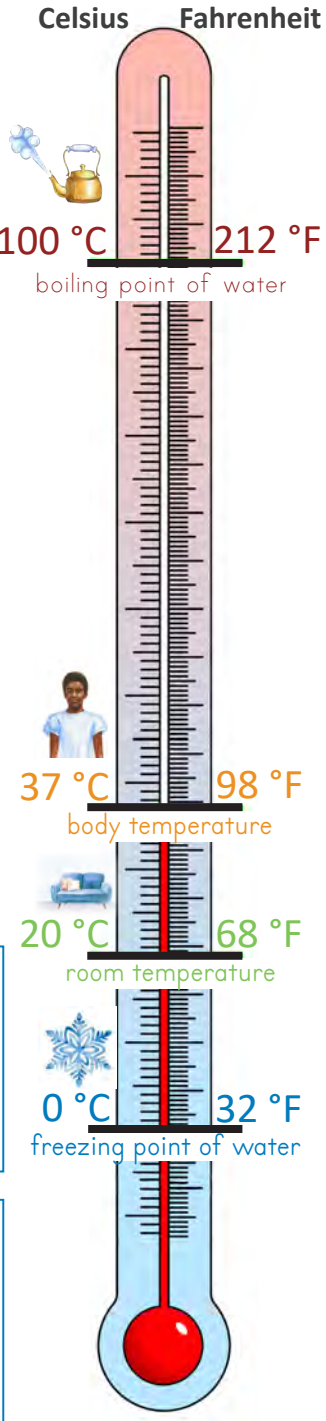
Mental Math

Have the child solve the problems aloud.

0 × 5 = 30 × 0 = 700 × 1 = 1 × 2,540 =

Read to the child: Tombe and Winnie have been learning about temperature, and today they are heading out for a hike to practice what they have been learning. Using a ***thermometer***, an instrument that measures temperature, they can measure the temperature of air, water, and their own bodies.

Temperature is often measured in degrees Fahrenheit and degrees Celsius. The Fahrenheit scale is used in the United States and a few other countries. Most other countries use the Celsius scale. Some thermometers look like the one to the right. Notice it is a vertical number line. Each mark represents two degrees on the Fahrenheit scale and one degree on the Celsius scale. Use the information on the thermometer to fill out the charts below.



Notice how the two scales have different numbers for the same temperature. Even though the numbers are different, 68 degrees Fahrenheit feels exactly the same as 20 degrees Celsius.

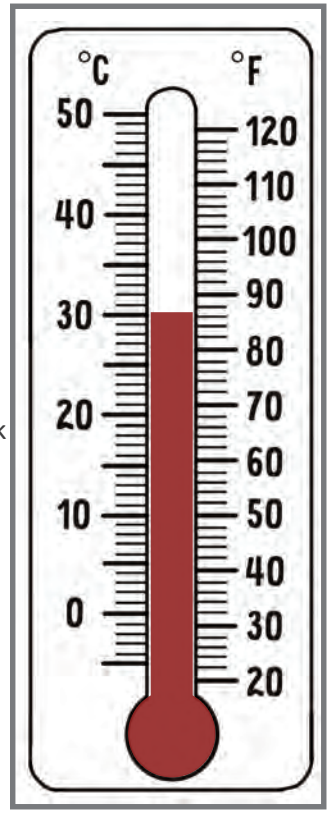
Freezing Point of Water	
°F	°C

Boiling Point of Water	
°F	°C

Body Temperature	
°F	°C

Room Temperature	
°F	°C

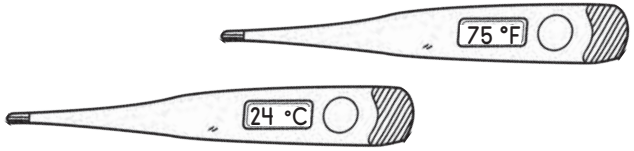
At the start of the trail, it is very warm. Tombe takes the temperature of the air using the gray thermometer. Look at the correct temperature scale. Start at the bottom and go up to the last number listed below the top of the red line. Count on by ones for Celsius or twos for Fahrenheit for each tick mark until you reach the top of the red line. Then write the temperature in degrees Celsius and degrees Fahrenheit.



Celsius	Fahrenheit
°C	°F

Winnie also measures the temperature of the river by their trail, but she uses a digital thermometer like the ones shown below. Is the water temperature closer to room temperature or to the freezing point of water? Circle one.

Room Temperature | Freezing



Draw a line on Tombe's thermometer showing where 75 degrees Fahrenheit and 24 degrees Celsius would be. Which is hotter at the beginning of their hike, the air or the water? Circle one.

Air | Water

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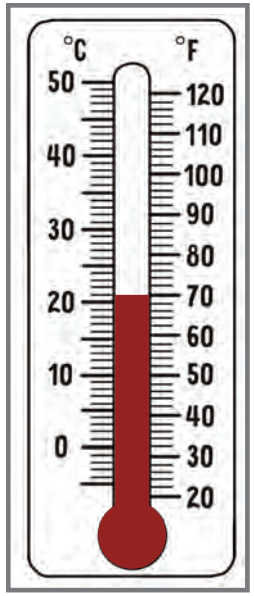
○ Read to the child: The siblings hiked up the mountain. Tombe measured the air again. He learned that air temperature is often colder higher in the mountains. Write the temperature shown on the thermometer.



°C	°F

Is the temperature closer to body temperature or room temperature? Circle one.

Body Temperature | Room Temperature

Winnie then measured the temperature of the water and found that it was also colder at the top of the mountain. What temperature does the digital thermometer say? Make a line on Tombe's thermometer to mark 56 degrees Fahrenheit. Then look across the thermometer to the Celsius scale to find what the equivalent temperature is in degrees Celsius. Write the number. Is the water temperature higher or lower than room temperature?

°C	56 °F

○ Read to the child: For each activity circle the more reasonable temperature.

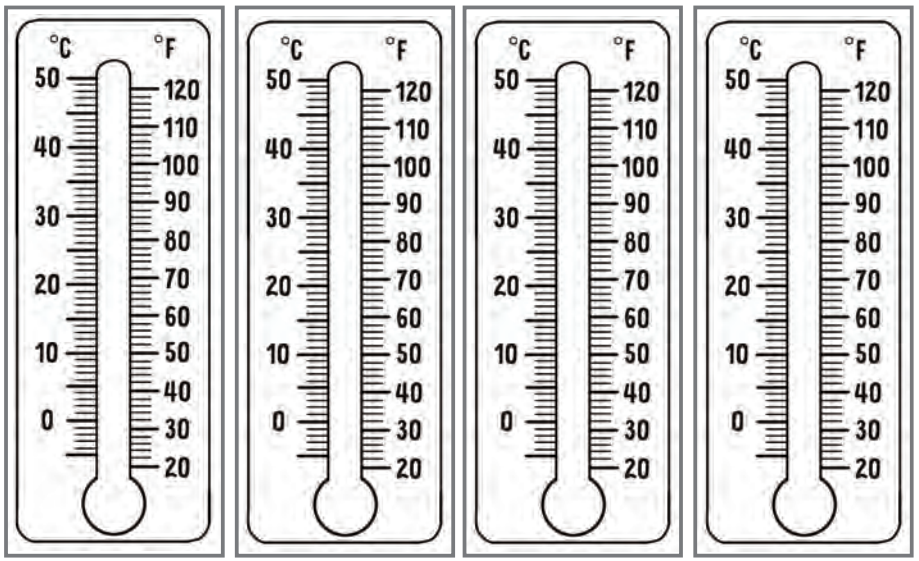
Swimming at the Beach:	95 °F / 35 °C	**OR**	50 °F / 10 °C
Building a Snowman:	86 °F / 30 °C	**OR**	32 °F / 0 °C
Playing Soccer in a T-Shirt:	79 °F / 26 °C	**OR**	36 °F / 2 °C

LESSON PRACTICE

Fill in the blank boxes on the chart. Look at the previous page for help.

Freezing Point of Water	Boiling Point of Water	Average Body Temperature
°F °C	°F °C	°F °C

Shade the thermometers to show the correct temperatures in either degrees Fahrenheit or degrees Celsius. Optionally, add more to the scenes below, such as snow, grass, flowers, or fallen leaves, to match the temperature.



42 °C | 12 °C | 22 °F | 70 °F

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REVIEW & ACTIVITIES

Shade the two numbers that round to $8.00 when they are rounded to the nearest dollar.

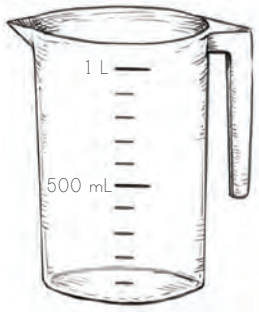
Round each number to the nearest HUNDRED. Write the answer in the box.

587 ☐

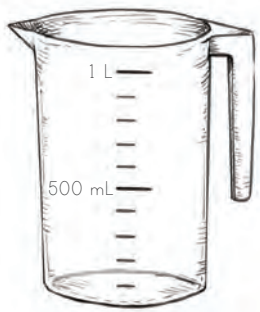
4,150 ☐

Color in the pitchers to show the correct amount of liquid.

400 mL



800 mL



On their hike Tombe saw 8 butterflies and 3 moths. He also counted 13 beetles. How many insects did he see altogether?

Skip-Counting Maze

Skip count by 3s to find the way through the jungle to the hut.

For each subtraction problem, write the value shown in expanded form in the green box and complete the problem.

9,000 + 600 + 70

☐,☐

− 5,423

7,000 + 500 + 90

☐,☐

− 4,462

The rain started falling at 6:03 AM and fell for 49 minutes. What time did the rain stop falling?

start time ☐:☐

elapsed time + ☐:☐

end time ☐

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section. ☐

6 × 1	3 × 3	3 × 4	10 × 5
6 × 4	4 × 8	3 × 5	9 × 0

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Lesson 33

TABLES AND BAR GRAPHS

Skip Counting

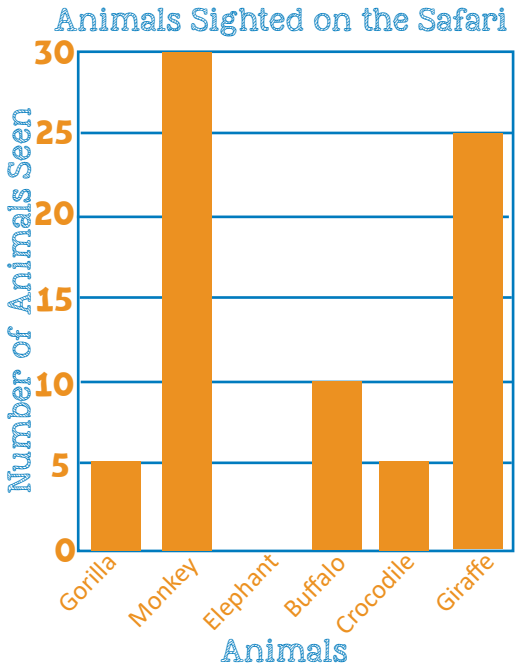
Have the child complete the following aloud.

- Skip count by 7s to 70.
- Skip count backward by 3s from 30 to 0.

○ Read to the child: Many people travel to Uganda each year to see the animals. Winnie's grandfather is a safari guide, and today she is going with him. Winnie uses tables and bar graphs to help organize data she collects on the safari. Information, such as numbers and descriptions, arranged in rows and columns is called a table. The table here shows the number of animals that were sighted on the safari today.

Animal	# of Animals Sighted
Gorilla	5
Monkey	30
Elephant	20
Buffalo	10
Crocodile	5
Giraffe	

Winnie uses the data listed in the table to create a bar graph. A bar graph is a set of bars used to show the amounts of each type of data collected. The bars can be positioned vertically or horizontally. She uses the bar graphs to show tourists how many animals are usually seen on a safari.



To read the bar graph, look at the names of the animals along the bottom of the bars. Place your finger on the buffalo column. Move your finger up to the top of the bar, and then slide it over to the scale on the left. What number are you pointing to? [10] That means 10 buffalo were sighted. The table shows that there were 20 elephants sighted. Draw a bar in the elephant column to represent this data. Now read the bar graph to find the number of giraffes sighted. Write this number in the correct space in the table on the left.

Use the information shown in the bar graph to answer the questions.

- Which animal was sighted the most?
- Which two animals were sighted the least?
- How many more monkeys were sighted than buffalo?
- How many total animals were sighted?

○ Graphing Practice: We are going to make our own bar graph. First, write the names of four different families in the blanks on the table on the next page. (One can be your family.) Write the number of people in each family in the space next to their name. Using the data in your table, create a bar graph. Write a title for the graph and list each family name along the bottom. Then color in the bars with the correct number for each family. Ask the child questions, such as, "Which family has the most people?" etc.

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Family Name	# in Family

Title:

9
8
7
6
5
4
3
2
1
0

LESSON PRACTICE

Joy's Flowers

Winnie's mother, Joy, often makes bouquets of flowers to sell to the tourists after their safari ends. Today, her bouquets included the following flowers:

7 leopard orchids, 4 flame lilies, 3 African daisies, and 5 birds of paradise.

Organize the data using a table. Then draw the bars on the bar graph to represent the information from the table and answer the questions below.

FLOWER	# IN BOUQUET
leopard orchid	
flame lily	
African daisy	
bird of paradise	

Flowers in an African Bouquet

Number of Flowers

7
6
5
4
3
2
1

leopard orchid
flame lily
African daisy
bird of paradise

Type of Flower

1. Which flower was used most often?
2. Which flower was used least often?
3. How many flowers were used altogether?
4. Which flower is your favorite one? Circle it above.

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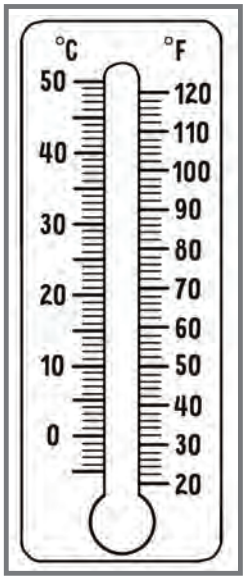
REVIEW & ACTIVITIES

Shade the thermometer to show this temperature:



82 °F / 28 °C

Circle the correct answers.

At what degree Fahrenheit does water freeze?

15 °F **32 °F**

0 °F **22 °F**

At what degree Celsius does water boil?

50 °C **100 °C**

212 °C **350 °C**

Complete the addition and subtraction problems, and then use the clues below to find out which animal is Winnie's favorite.

$$\begin{array}{r} 23{,}431 \\ +\ 54{,}657 \\ \hline \end{array}$$

$$\begin{array}{r} 42{,}739 \\ +\ 44{,}912 \\ \hline \end{array}$$

$$\begin{array}{r} 71{,}529 \\ -\ 36{,}195 \\ \hline \end{array}$$

$$\begin{array}{r} 44{,}729 \\ -\ 17{,}295 \\ \hline \end{array}$$

The answer that matches these clues is next to Winnie's favorite animal. Circle her favorite animal.

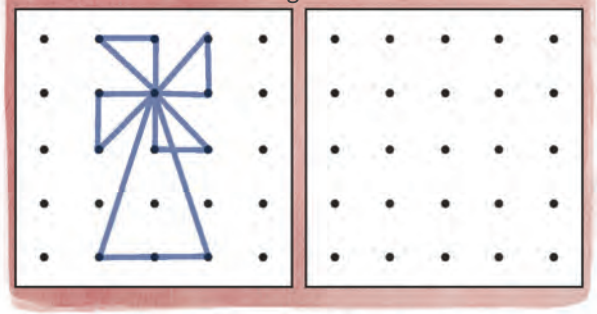
- The number is even.
- The number has a 3 in the tens place.
- The digit in the hundreds place is a 4 when the number is rounded to the nearest hundred.

The average adult giraffe is about 5 meters tall. How tall is that in centimeters? (Hint: There are 100 centimeters in a meter.)

For the safari the tourists will ride through 7 kilometers of countryside. How far is that in meters? (Hint: There are 1,000 meters in a kilometer.)

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

5	4	7	7	5	8	9	3
× 9	× 4	× 3	× 4	× 8	× 7	× 4	× 9

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Lesson 34

REFLECTIONAL SYMMETRY

Calendar & Temperature

Take the array mat from the math box.

- Complete the calendar chart by writing the number of days in each month in the box.
- Fill out the temperature chart with the correct temperatures.

○ Read to the child: Many African people use a variety of symbols on their fabrics, pottery, and wall decorations. These symbols often tell a story or teach a lesson. For example, a heart can be used to represent patience. This is a great reminder of how God teaches us to be patient with one another.

Trace the dashed line on the heart. This is called a ***line of symmetry***, also known as a dividing line of a shape between two mirrored sides. A line of symmetry divides a shape into halves that are mirror images of each other. Imagine that you folded the heart along the line of symmetry. Both sides would exactly meet. This is called ***reflectional symmetry***.

Some shapes have more than one line of symmetry. For example, the African symbol for strength is shown here. This reminds us that the Lord is our strength. Trace the two lines of symmetry. Whether you fold the symbol vertically or horizontally, the sides will mirror each other.

Some shapes do not have any lines of symmetry. It doesn't matter where we try to draw a line of symmetry, we cannot divide the shapes into identical parts that mirror each other, like the examples here.

TRUSTING IN GOD

WISDOM

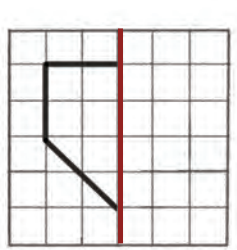
Draw all lines of symmetry for the following letters. Shade in the correct circle to show whether each capital letter has 0, 1, or 2 lines of symmetry.

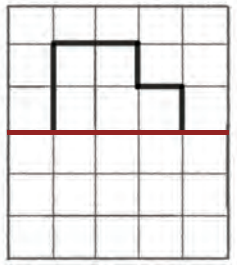
M ○0 ○1 ○2

H ○0 ○1 ○2

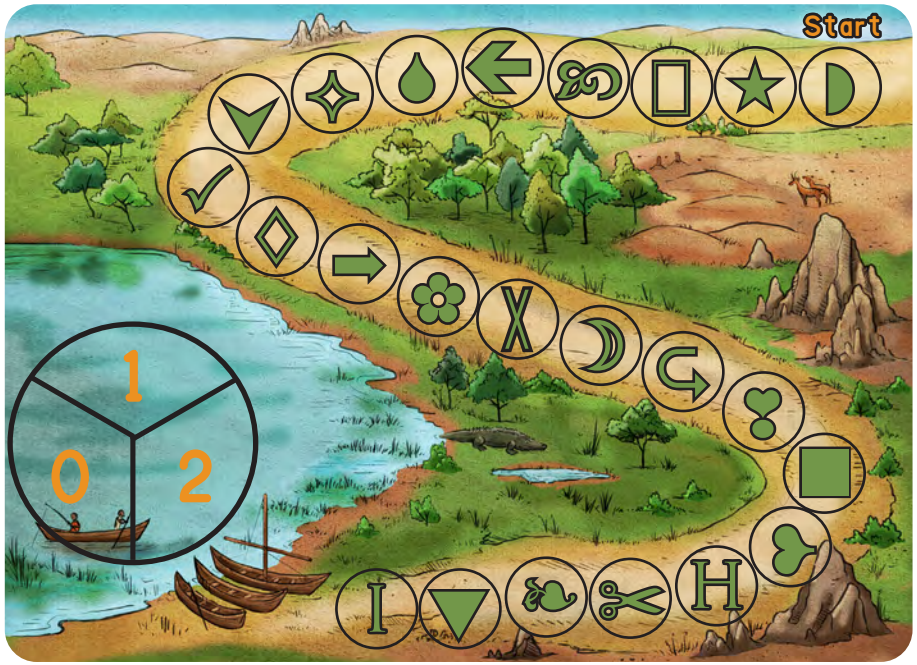
F ○0 ○1 ○2

Complete each picture so that it is symmetrical. Use the red line of symmetry as a guide.





○ **Game—Symmetry Path:** Take the paper clip and game pawns from the math box. Place the game pawns on "Start." Spin the spinner (using a paper clip and pencil). Find the next shape with that number of lines of symmetry and move your game pawn there. The next player repeats the same steps. The first player to get to Lake Victoria wins! Note: Only use vertical or horizontal lines of symmetry.



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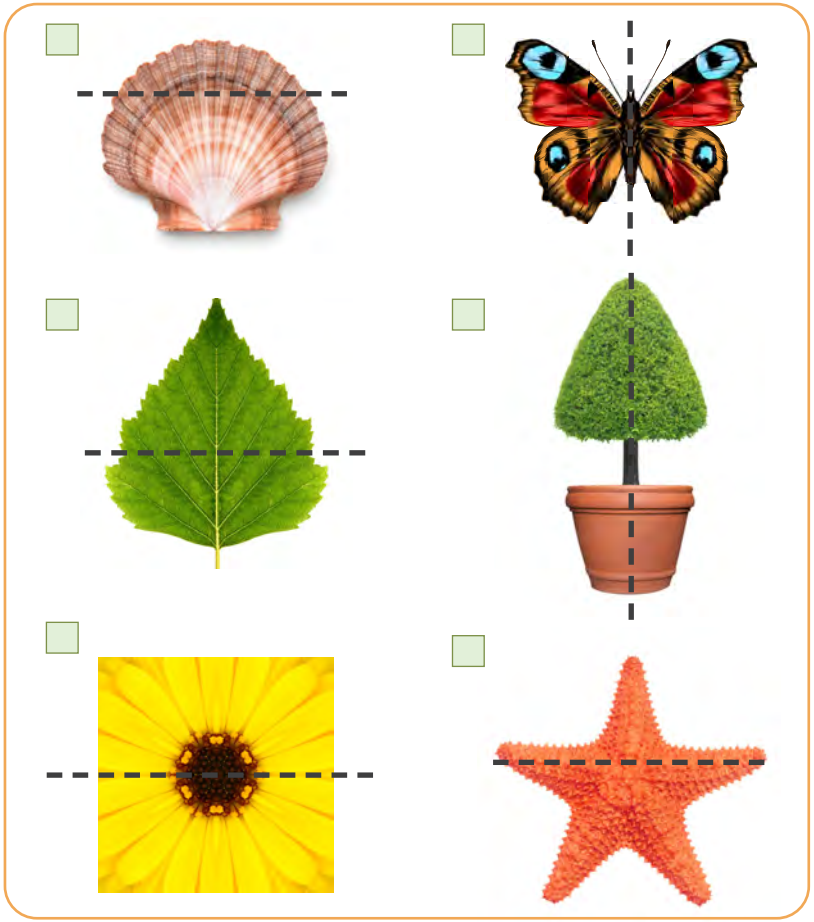
LESSON PRACTICE

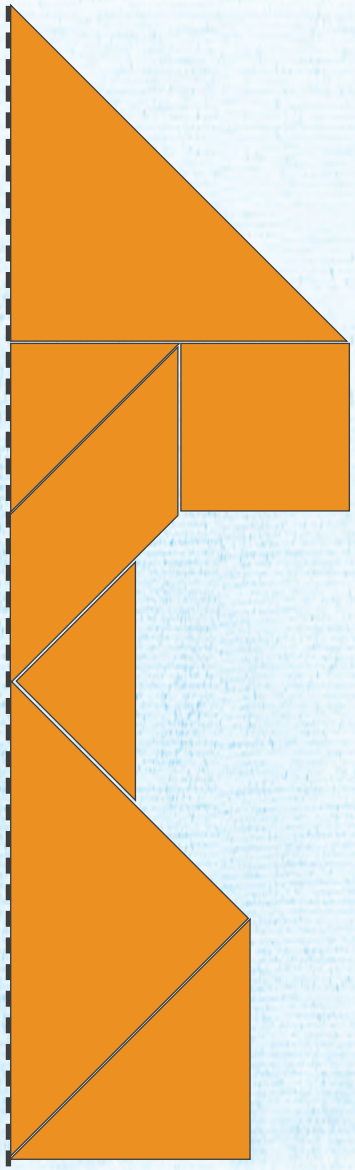
Put a check mark next to each picture that has the line of symmetry correctly drawn. If it is incorrect, draw a correct line of symmetry.



Write your name in the box below, using all capital letters. Draw all possible lines of horizontal and vertical symmetry through each letter. Then write the number of lines of symmetry below each letter.

Tangram Lines of Symmetry

Use the orange tangram shapes from the math box to complete this activity. Place the correct shapes across from the line of symmetry to complete a mirror image.



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REVIEW & ACTIVITIES

Fill out the chart with the correct conversions.

Metric Length
1 m = ____ cm
1 km = _____ m

Use the information in the table below to fill out the bar graph. Then answer the questions.

Animal	# of Animals
Goat	2
Chicken	12
Duck	4
Rabbit	8

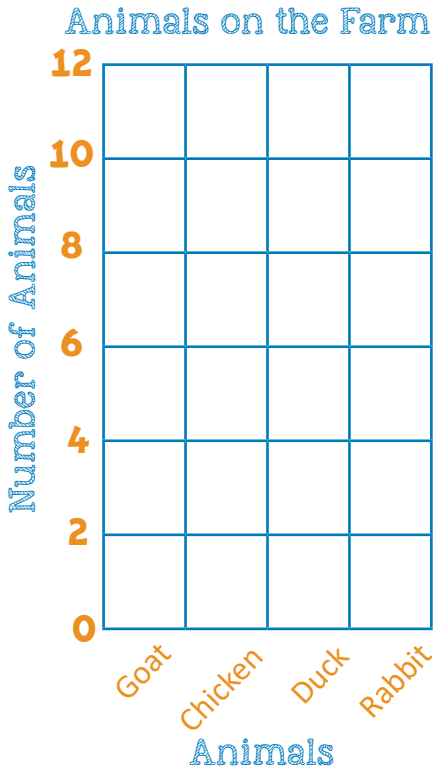
Which animal do they have the most of?

How many animals do they have altogether?

How many more rabbits are there than ducks?

The walk from Winnie's hut to the garden is 9 meters long. How long is it measured in centimeters?

Tombe and Winnie's father is 200 centimeters tall. How tall is he in meters?



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more.

Write the answers to the multiplication facts.

4	5	8	7	4	9	8	9
× 4	× 4	× 7	× 3	× 9	× 3	× 5	× 5

The multiplication facts above are hidden in the chart below. Find the facts, circle them, and write the multiplication and equal symbols where they go. Facts can be horizontal, vertical, or diagonal. The first one is completed as an example.

9	5	45	4	6	4	8
4	1	4	3	1	10	5
0	9	2	4	4	2	40
9	1	36	56	16	15	34
2	3	3	6	7	3	21
18	1	27	6	8	7	56
5	4	20	36	3	4	9

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Lesson 35

FRACTIONS: IDENTIFYING AND GENERATING HALVES

Skip Counting

Practice items the child has not mastered.

- Review counting by 5s from 5 to 120.
- Count by 100s from 100 to 1,000.

Read to the child: Tombe and Winnie always enjoy this time of year when they get to help their parents gather the harvest from their garden. They always share half of their crops with the community as a way to bless those around them. Their family grows beans, sweet potatoes, plantains, corn, and wheat.

With fractions, when the top number (numerator) is half of the bottom number (denominator) then the fraction is equal to one-half.

Circle the correct number of boxes to represent half of the beans. What fraction of the beans are circled? To write the fraction of each crop they share, write the total number of boxes as the denominator and the number of circled boxes as the numerator in the green squares.

Beans

Circle the correct number of boxes to represent half of the sweet potatoes in the next column. What fraction of the sweet potatoes is circled?

Sweet Potatoes

For each set of boxes, circle half of the crop. What fraction of each crop is circled?

Plantains

Corn

Wheat

Fill in the blanks with the fractions that represent half:

$\frac{1}{2}$ beans _____ sweet potatoes _____ plantains _____ corn _____ wheat

Did you notice that the numerator is always half of the denominator and that the denominator is always an even number in fractions that equal one-half?

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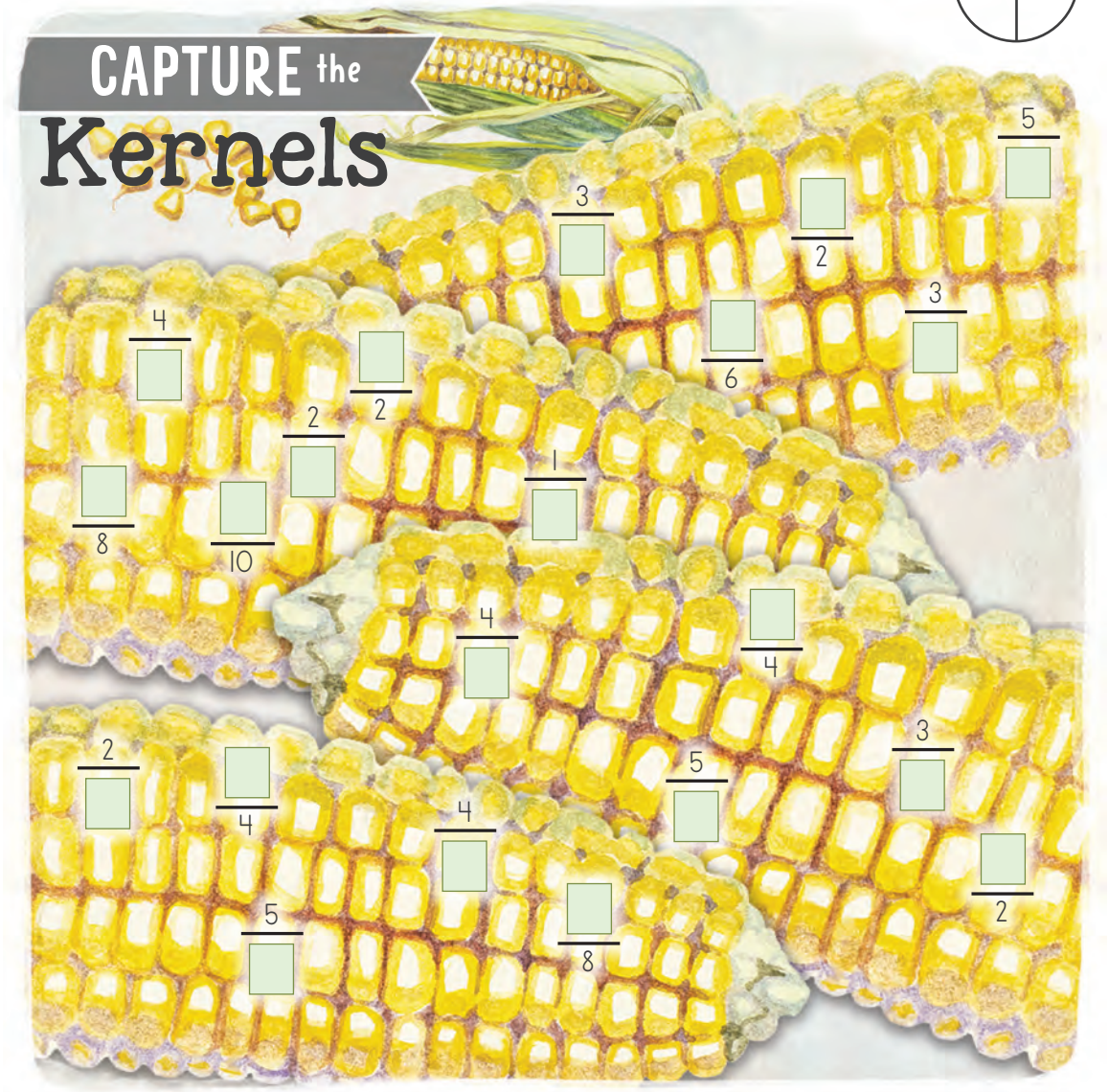
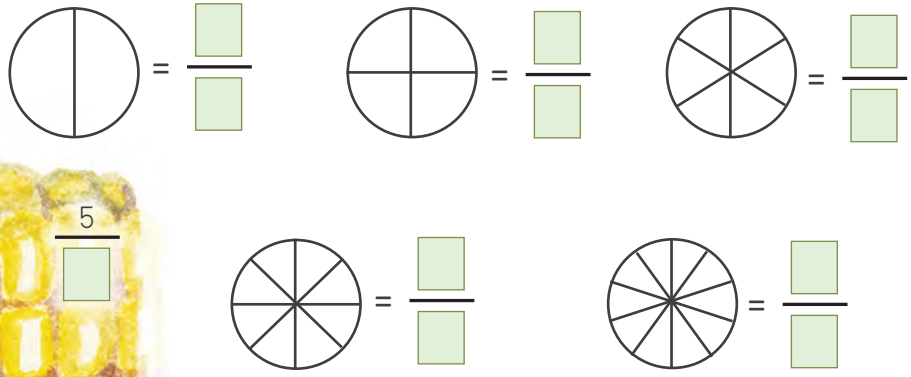
○ **Game—Capture the Kernels:** Take two different colored pencils and the 10-sided dice from the math box. Roll the dice. If the number you rolled can be used to create a fraction equal to one-half (either as a numerator or denominator), then write the number in the blank space with your colored pencil to capture it. After you have gone, or if the dice lands on a number that cannot be used, then your turn is over and it's my turn to roll the dice. The person who captures the most kernels wins!



LESSON PRACTICE

Shade in half of each circle below. Then write the fraction that represents the amount shaded.



Circle all five fractions that are equal to one-half.

$\frac{4}{8}$ $\frac{5}{8}$ $\frac{2}{4}$ $\frac{2}{3}$ $\frac{3}{6}$ $\frac{4}{5}$ $\frac{1}{3}$ $\frac{5}{10}$ $\frac{3}{4}$ $\frac{2}{5}$ $\frac{6}{7}$ $\frac{7}{9}$ $\frac{1}{2}$ $\frac{4}{9}$ $\frac{8}{10}$ $\frac{3}{7}$

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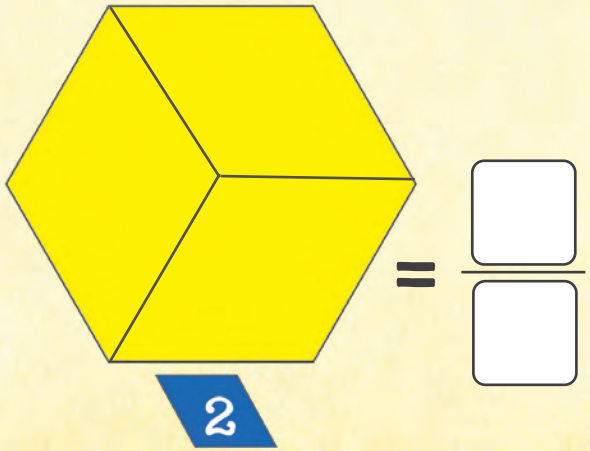
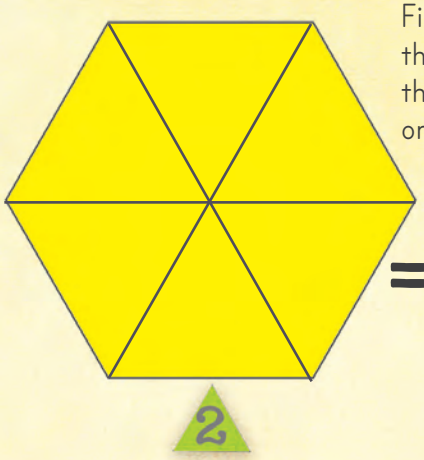
Geometric Fractions

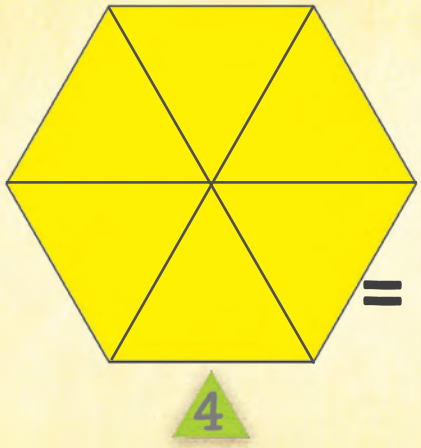
Fill in each hexagon using the specified number of shapes from the math box. Then write a fraction for the part of the hexagon that is covered with shapes. Circle the fractions that equal one-half.



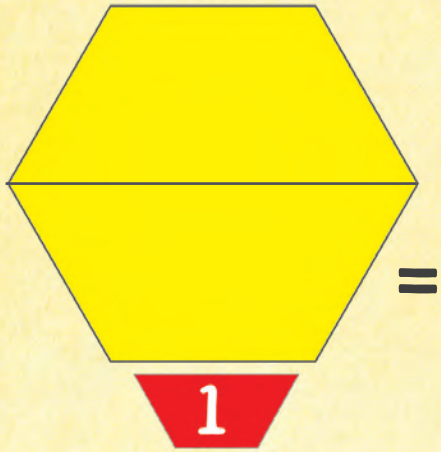
= $\frac{\square}{\square}$



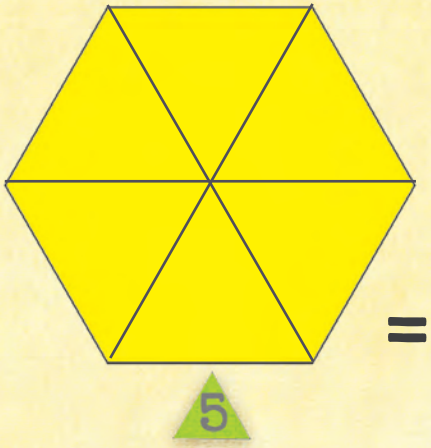
= $\frac{\square}{\square}$



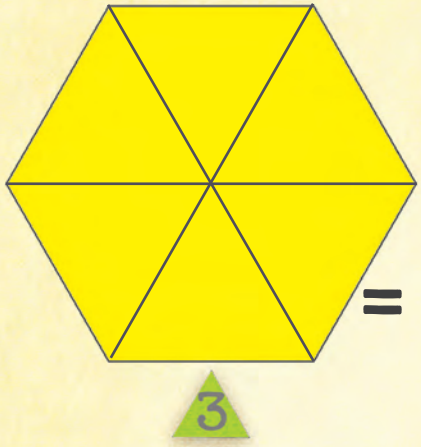
= $\frac{\square}{\square}$



= $\frac{\square}{\square}$



= $\frac{\square}{\square}$



= $\frac{\square}{\square}$

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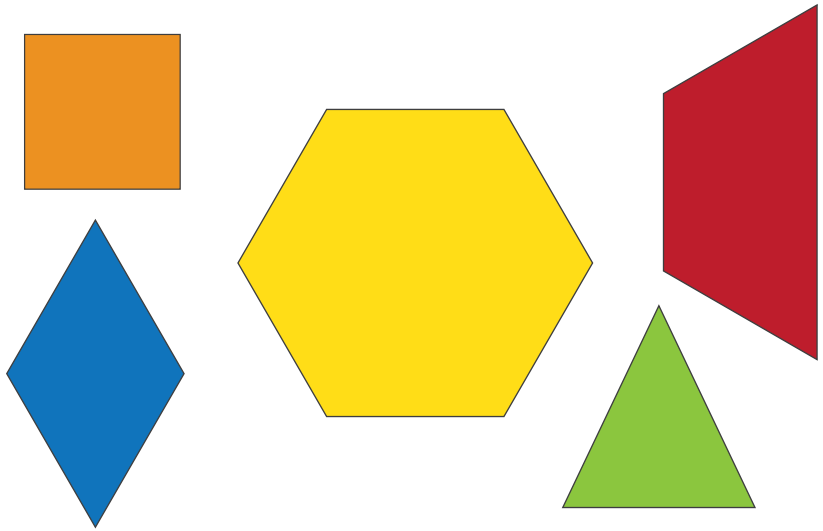
REVIEW & ACTIVITIES

Draw horizontal or vertical lines of symmetry for each shape. Circle the shapes that have only one line of symmetry.



Round each number to the nearest **hundred.** Write the answer in the box.

32,770	63,175	17,644

Figure out the skip-counting pattern and write the missing numbers.

21	18		12		

Complete the problems.

724,063 + 214,854	735,726 + 63,241	5,624 + 4,352

INSECT Logic

In some countries people eat things that are not commonly eaten in other countries, but that doesn't mean their food is gross. Three of the four insects below are commonly eaten in Uganda and provide great protein. Find and circle the insect that Ugandans do NOT eat by using the numbers below each insect to complete the logic puzzle.

Bees	Grasshoppers	Termites	Mealworms
123,987	4,330,320	123,895	4,763,320

1. **This bug is eaten.** It is an even number and has a 6 in the ten thousands place.
2. **This bug is eaten.** It has this expanded form:

   100,000 + 20,000 + 3,000 + 800 + 90 + 5
3. **This bug is eaten.** It has a 3 in the hundred thousands place.

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 4	4 × 5	3 × 7	4 × 7	8 × 5	8 × 7

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Lesson 36

CONVERTING BETWEEN INCHES, FEET, AND YARDS

Skip Counting

Practice items the child has not mastered.

- Count by 6s from 6 to 60.
- Count by odd numbers from 1 to 19.

○ Read to the child: Today, we will explore Tombe and Winnie's goat farm to learn how to convert between inches, feet, and yards. Look at the baby goat. The length of its leg is exactly 12 inches, which is equal to 1 foot. Take the measuring tape from the math box. Pull out the measuring tape to 12 inches to see the actual size of the baby goat's leg.

Use the measuring tape to fill out the table of conversions. Count up by 12s and circle each 12th number on your measuring tape with a marker.

ft	1	2	3	4	5
in	12				

If the height of the mother goat is 3 feet, how many inches tall is she? [36 in]

If the baby goat is 1 foot 10 inches tall, how many total inches tall is he? To find the answer, convert 1 foot to inches. Then add the inches together and label your answer.

1 ft ⟶ 12 in
+ 10 in

○ Read to the child: Find 3 feet on your measuring tape. This is the same as 1 yard. In the picture above, each section of the fence for the goat pen measures 3 feet (or 1 yard). Count by 3s to fill out the table of conversions.

yd	1	2	3	4	5
ft	3				

If each side of the goat pen is 4 yards long, how many feet long is each side? Use the table to find the answer. Write the answer on the image above.

If the goats' shelter is 2 yards 1 foot tall, how many total feet tall is it? To find the answer, convert the yards to feet, using the chart. Then add the feet together and label your answer.

2 yd ⟶ ☐ ft
+ 1 ft

○ **Game—Spin & Match:** Take the paper clip from the math box. Read to the child: On the next page, we will take turns using a pencil and paper clip to spin. Convert the measurement you land on to a smaller unit of measurement. For example, 1 yard 1 foot will be converted to 4 feet. Use a whiteboard to calculate and then find the matching equivalent measurement. Mark off the matching box with your initials. If you spin a measurement that has already been claimed, then your turn is over. The first player to claim three boxes in a row is the winner.

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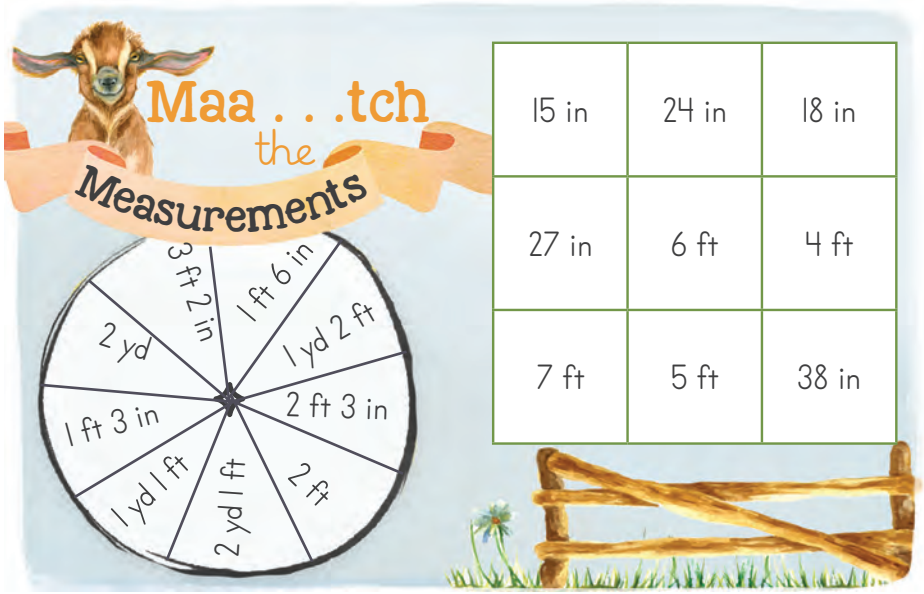

15 in	24 in	18 in
27 in	6 ft	4 ft
7 ft	5 ft	38 in

LESSON PRACTICE

Write the number below to complete each conversion.

1 ft = ____ in | **1 yd = ____ ft**

Winnie's goats enjoy eating carrots from her garden. How much longer would the carrot need to be to measure 1 foot? (Hint: There are 12 inches in a foot. Subtract the length from 12 inches to find the difference.)

____ in

How many total inches long is the goat's lead rope?

1 ft 8 in

____ in

\+ 8 in

____ total inches

How many more feet must the bale of hay be to reach 1 yard high? (Hint: There are 3 feet in a yard.)

2 ft

____ ft

How many feet tall is Winnie? Convert the yard to feet and add all the feet together.

1 yd 2 ft

____ ft

\+ 2 ft

____ total feet

Fun Finds

Using the measuring tape from the math box, measure the lengths of different items around your house. See if you can find at least two items that fit into each category. Write the items and measurements below.

Less than 12 in (1 ft)	13 to 24 in
Between 2 and 3 ft	Greater than 3 ft (1 yd)

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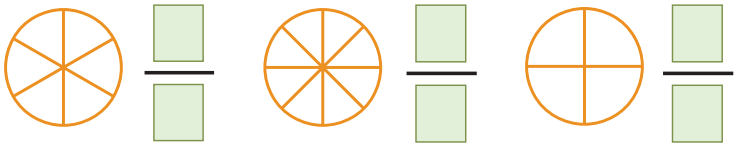
REVIEW & ACTIVITIES

Shade in half of each circle below. Then write the fraction that represents the amount shaded.



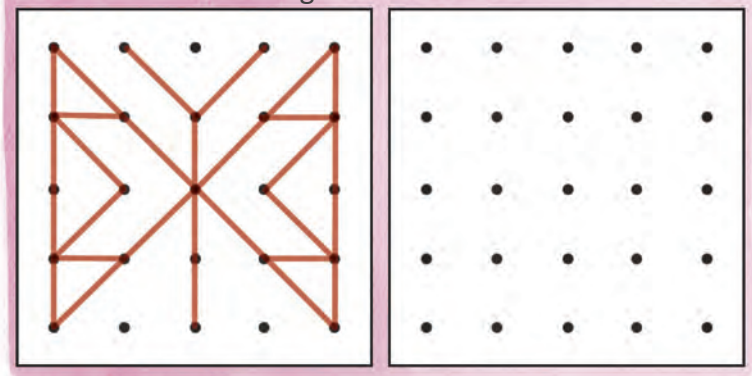
Fill in the blanks on the fractions to make them equal to one-half.

$\frac{4}{\square}$ $\frac{2}{\square}$ $\frac{3}{\square}$ $\frac{5}{\square}$ $\frac{\square}{6}$ $\frac{\square}{2}$ $\frac{\square}{8}$

Draw lines of symmetry for each African design below.

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



Round each amount to the nearest dollar. Then complete the rounded addition problems to find the answer to the riddle.

$7.83 + $9.25 → $ + $ = ___ **R**	$42.79 + $27.47 → $ + $ = ___ **D**	$70.50 + $18.29 → $ + $ = ___ **E**
$5.53 + $7.34 → $ + $ = ___ **S**	$72.98 + $64.17 → $ + $ = ___ **A**	$86.61 + $43.92 → $ + $ = ___ **D**

Which snakes are good at math?

$137	$70	$131	$89	$17	$13

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 9	7 × 8	8 × 5	4 × 7	3 × 7	4 × 4	5 × 9
9 × 3	7 × 3	7 × 4	5 × 8	8 × 7	9 × 4	3 × 9

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Lesson 37

CREATING MORE BAR GRAPHS

Skip Counting

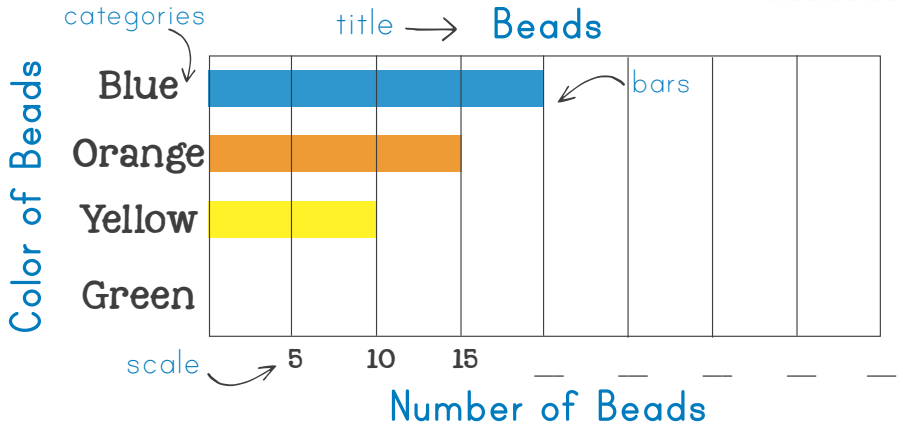
Practice these items.

- Count by 9s from 9 to 99.
- Count backward by 4s from 40 to 0.

Read to the child: Bead making is one of the oldest forms of art and has a long history throughout the world, especially in Uganda. Winnie's favorite hobby is to help her mom make beaded necklaces using recycled paper from books, newspapers, and magazines. Each bead is hand rolled and then coated with a chemical to seal it and harden the outside. They are very pretty and colorful.

Winnie made a bar graph to compare the quantities of the colors of beads that they made. Look at the data below.

First, Winnie gave her graph a title. Notice the word "Beads" at the top of the graph. Then she chose the best scale for her graph. The ***scale*** tells you what each one of the lines represents. Scales often increase by 1s, 2s, 5s, or 10s depending on the data. Winnie decided to use a scale that increases by 5 since the numbers in her data are multiples of 5. Finish writing the numbers for the scale on the blanks, counting by 5s. Winnie knew it was also important to label each of her bars with the specific colors. Lastly, she filled in the number of spaces needed to represent each number of beads. Use a green colored pencil to fill in the bar for the green beads.



Now it's your turn to create a bar graph! Once Winnie and her mom were finished making the bead necklaces, they decided to donate a few, sell some at a local market, and give the rest as gifts to their family members. Use the data to create a bar graph below. Your graph will need to be horizontal like the graph above.

Donate: 6 Sell: 12 Gift: 4

Step 1: Write a title on the line below, such as "Necklaces."

Step 2: Determine what scale you will use. You could count by 1s, 2s, 5s, or 10s, but which scale makes sense with your data? Notice how all your numbers are even and the highest number is 12. You do not have 12 spaces, so you cannot count by 1s. Counting by 2s will work best here.

Step 3: Label the rows with "Donate," "Sell," and "Gift."

Step 4: Fill in the correct number of spaces to create the bars.

Title: _____

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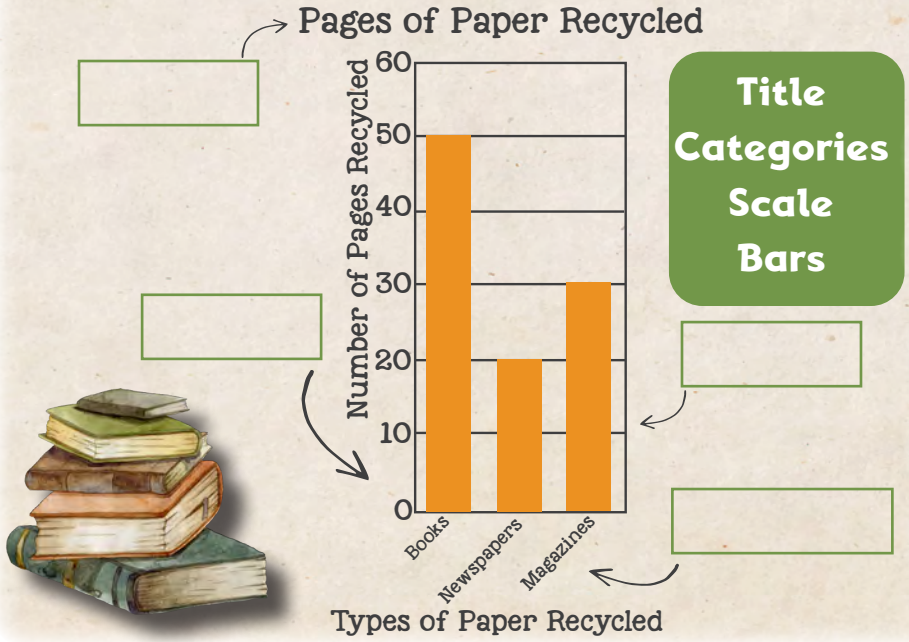
LESSON PRACTICE

Use the terms from the word bank to fill in the blanks and then answer the questions.

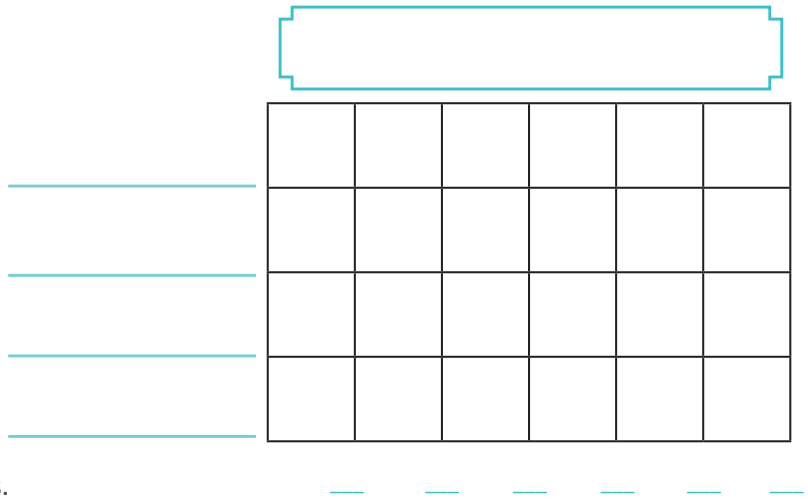


Title
Categories
Scale
Bars

1. How many pages came from books?
2. How many pages came from newspapers?
3. How many pages came from magazines?
4. How many more pages came from books than newspapers?
5. How many fewer pages were from newspapers than magazines?
6. How many pages were collected altogether?

Tombe took a survey of his community's favorite fruits. Help Tombe create a horizontal bar graph of the results he collected.

Passion Fruit	10
Mango	25
Banana	20
Pineapple	15



Step 1: Write a title.

Step 2: Determine what scale you will use.

Step 3: Label the rows.

Step 4: Fill in the spaces to create the bars.

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REVIEW & ACTIVITIES

Complete the conversions.

1 ft = ____ in	1 yd = _____ ft

How many inches tall is the stack of books?

1 ft 4 in

____ in

\+ 4 in

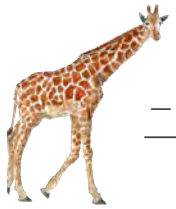
____ in

Complete the subtraction problems and then use the clues below to find out which animal is Tombe's favorite.

6,831 − 4,257

8,739 − 4,915

7,526 − 6,285



4,743 − 1,277

The answer that matches these clues is next to Tombe's favorite animal. Circle his favorite animal.

- The number is even.
- The number has a 4 in the ones place.
- The digit in the hundreds place would be 6 if you rounded the number to the nearest hundred.

Lions and hippos live in Uganda. A lion can drink about 8 cups of water in a day. How many pints does a lion drink in a day? (Hint: Draw 8 cups and circle every 2 cups to find the number of pints.)

Each day a hippopotamus drinks about 224 pints times 2. How many pints does a hippo drink in a day? (Hint: You can also add 224 + 224 to find the answer.)

Write a fraction to show the amount that is shaded in each shape. Circle the fraction that is equal to one-half.

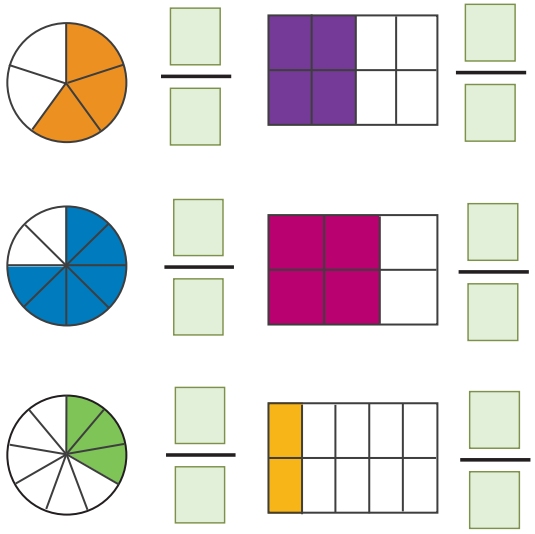


Figure out the skip-counting patterns and write the missing numbers.

6, _____, 18, 24, _____, _____ ★ 36, _____, 30, 27, _____, 21, _____, _____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 4	9 × 5	7 × 3	4 × 7	5 × 8	8 × 7	9 × 4	3 × 9

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Lesson 38

FRACTIONS EQUAL TO 1 & NAMING FRACTIONS

Mental Math

Complete the problems using mental math.

48 + 9 340 + 90 2,300 + 900

Supplies
- set of dry measuring cups ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, and 1)
- 2 cups flour in a medium bowl
- optional tray or plate

Read to the child: Winnie and Mama are preparing a vegetable stew and chapati (an African flatbread) for dinner. To make the stew, Winnie chops up two-thirds of an onion, three-fourths of an eggplant, one-third of a red pepper, one-half of a sweet potato, and four-fourths of a squash.

Circle the words that represent a fraction in the sentence I just read. When naming a fraction in word form, we name the numerator (top number) first, write a hyphen, and then we name the denominator (bottom number) as an ordinal number, such as "third." One-half is an exception to the rule. Look at Winnie's recipe below and match the fractions to their word forms and fraction images to the right.

Vegetable Stew

$\frac{2}{3}$ onion

$\frac{3}{4}$ eggplant

$\frac{1}{3}$ red pepper

$\frac{1}{2}$ sweet potato

$\frac{4}{4}$ squash

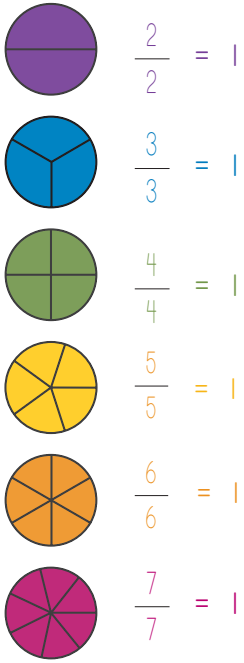
one-half

two-thirds

four-fourths

three-fourths

one-third



$\frac{2}{2} = 1$

$\frac{3}{3} = 1$

$\frac{4}{4} = 1$

$\frac{5}{5} = 1$

$\frac{6}{6} = 1$

$\frac{7}{7} = 1$

Whole numbers can be named as fractions, too. Examples of fractions that equal one whole are two-halves, three-thirds, four-fourths, five-fifths, and so on. Can you find and circle the whole number fraction in Winnie's stew recipe? If the numerator and the denominator are the same number, the fraction is equal to 1.

Activity: Set out the $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, and 1 cup measuring cups and 2 cups flour in a bowl. Read to the child: Next Winnie and Mama make the chapati bread. They need to add one cup of flour to make the dough, but they have lost the 1 cup measuring cup. Move the 1 cup away from the others. Winnie has $\frac{1}{2}$ cup, $\frac{1}{3}$ cup, and $\frac{1}{4}$ cup measuring cups she can use instead. Have the child find each of these measuring cups.

Let's use these smaller cups to scoop out the amount of flour Winnie needs. They are each a fraction, or part of a whole cup. We will start with the $\frac{1}{2}$ cup. Fill the $\frac{1}{2}$ cup with flour and pour it into the 1 cup. Repeat until the 1 cup is full. How many scoops did you need? Write your answer in the blank space above the denominator of 2. Now pour the flour back in the bowl, and we will repeat this process with the $\frac{1}{3}$ and $\frac{1}{4}$ cup measuring cups. Write what you find in the blanks above the denominators of 3 and 4.

$\frac{\quad}{2} = 1$

$\frac{\quad}{3} = 1$

$\frac{\quad}{4} = 1$

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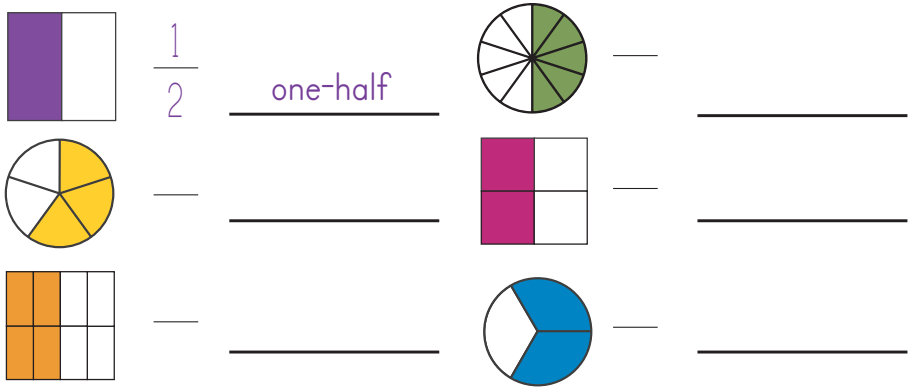
LESSON PRACTICE

Fill in the missing information. The first one has been done for you. Then circle the fractions that are equal to one-half.



$\frac{1}{2}$ one-half

Winnie wants to try a new recipe for stew. Circle all the fractions that equal 1 to find out what is in her new recipe. Which vegetable is your favorite one? Put a square around it.

Complete the problems below to find the answer to the riddle. Fill in the blank to make each fraction equal to $\frac{1}{2}$.

$\frac{\quad}{8}$	$\frac{2}{\quad}$	$\frac{3}{\quad}$	$\frac{\quad}{10}$
R	A	U	Q

Fill in the denominator for each fraction to make it equal to 1.

$\frac{7}{\quad}$	$\frac{9}{\quad}$	$\frac{5}{\quad}$	$\frac{3}{\quad}$
O	F	T	R

Fill in the numerator for each fraction to make it equal to 1.

$\frac{\quad}{4}$	$\frac{\quad}{8}$	$\frac{\quad}{2}$	$\frac{\quad}{6}$
R	S	U	E

How are a dollar and the moon similar?
Answer: They both have...

$\frac{9}{9}$	$\frac{7}{7}$	$\frac{2}{2}$	$\frac{4}{8}$

$\frac{5}{10}$	$\frac{3}{6}$	$\frac{2}{4}$	$\frac{3}{3}$	$\frac{5}{5}$	$\frac{6}{6}$	$\frac{4}{4}$	$\frac{8}{8}$

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REVIEW & ACTIVITIES

Winnie counted how many boxes of each kind of crop her family sold this year. Follow the steps to create a bar graph showing the data.

Step 1: Write the title "Boxes of Crops Sold" on the title line.

Step 2: Determine what scale you will use and write it on the bottom lines.

Step 3: Label the rows with the category names.

Step 4: Fill in the spaces to create the bars.

Corn	35
Plantain	20
Sweet Potato	15

Title: _____

Complete the conversions.

Metric Length

1 m = ____ cm	1 km = _____ m

Convert the lengths to either meters or kilometers.

3,000 m = _____ km 7,000 m = _____ km

5 km = _____ m 2 km = _____ m

Complete the problems and then use the >, <, or = sign to show which difference is greater.

$$\begin{array}{r} 7{,}063 \\ -\ 2{,}809 \\ \hline \end{array} \quad \bigcirc \quad \begin{array}{r} 6{,}708 \\ -\ 3{,}271 \\ \hline \end{array}$$

How many feet tall is the corn stalk?

2 yd 2 ft

$$\begin{array}{r} \square\ \text{ft} \\ +\ 2\ \text{ft} \\ \hline \square\ \text{ft} \end{array}$$

Draw horizontal and/or vertical lines of symmetry for each African design below.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 4 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 5 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times\ 4 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times\ 3 \\ \hline \end{array}$$

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Lesson 39

ADDING AND SUBTRACTING INCHES AND FEET

Calendar

Practice items the child has not mastered.

- Write the number of days for each month in a non-leap year on the calendar chart.
- Which month comes before April? After June?

○ Read to the child: Today, Tombe went fishing with his father, and they caught fish of all sizes. Tombe likes to measure the fish and keep a record of their lengths. Below is the longest fish they caught. Tombe already measured the fish in feet and inches, but he wants to know the length of the fish in inches only.

To find the total inches, the first step is to convert the 2 feet into inches by adding two groups of 12 inches (because 1 foot is equal to 12 inches). The second step is to add all the inches together.

12 in (in a foot)
+ 12 in (in a foot)
_____ (inches in 2 feet)

_____ (inches in 2 feet)
+ 9 in
_____ (total inches)

Tombe was curious how the combined lengths of the two smallest fish would compare to the longest fish. He added the inches column first, and then the feet column. Fill in the blanks to find the combined length for both fish. Is the combined length of the smaller fish greater than or less than the longest fish?

1 ft 4 in
+ 1 ft 1 in
_____ ft _____ in

Tombe subtracted the sum of the lengths of the two smaller fish from the length of the longest fish to find the difference. He subtracted the inches column first, and then the feet column. Fill in the blanks to complete the problem. How much longer is the largest fish?

2 ft 9 in
- 2 ft 5 in
_____ ft _____ in

Help Tombe find the sum of the lengths of two more fish.

First, add the inches. Notice that the sum in the inches column is 12 inches, which is the same as 1 foot. We need to convert those inches into feet and carry them to the feet column. This is just like when you carry to another place value in addition when the sum is greater than 9. Add all the feet together, including the one we carried from the inches column, and write the total number of feet in the box next to "ft." In the space for inches you can write a zero because there are no inches remaining.

1 ft 7 in
+ 1 ft 5 in
_____ ft _____ in → _____ ft _____ in

12 in = 1 ft

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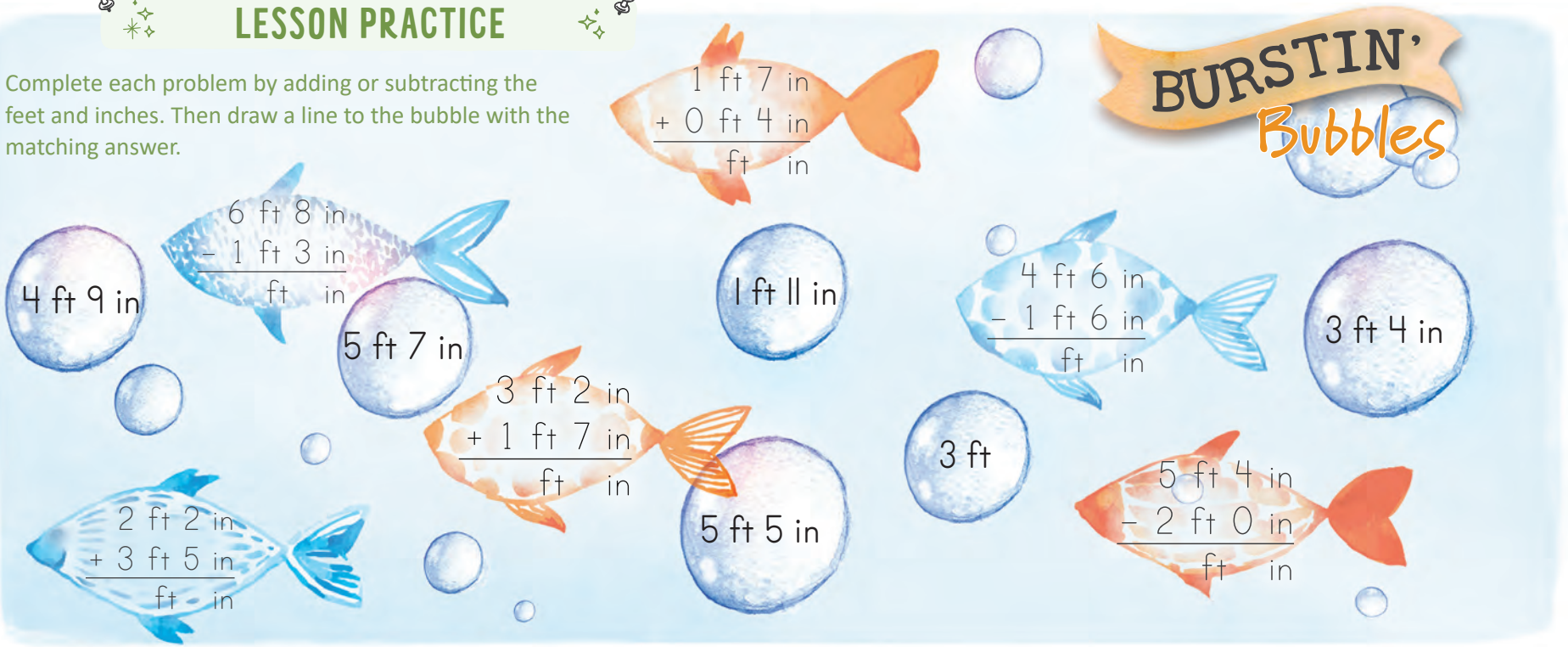
LESSON PRACTICE

Complete each problem by adding or subtracting the feet and inches. Then draw a line to the bubble with the matching answer.


BURSTIN' Bubbles
1 ft 7 in + 0 ft 4 in = ft in
6 ft 8 in − 1 ft 3 in = ft in
4 ft 9 in
5 ft 7 in
1 ft 11 in
4 ft 6 in − 1 ft 6 in = ft in
3 ft 4 in
3 ft 2 in + 1 ft 7 in = ft in
3 ft
5 ft 4 in − 2 ft 0 in = ft in
2 ft 2 in + 3 ft 5 in = ft in
5 ft 5 in

Fishing Pole Lengths

A	2 ft 2 in	in
B	2 ft 5 in	in
C	2 ft 9 in	in

Convert the fishing pole lengths into total inches and write the answers in the chart. Then complete each problem by adding or subtracting the feet and inches.

1. What is the combined length of fishing pole A and fishing pole C?

$$\begin{array}{r} 2\text{ ft }2\text{ in} \\ +\ 2\text{ ft }9\text{ in} \\ \hline \square\text{ ft }\square\text{ in} \end{array}$$

2. How much longer is fishing pole B than fishing pole A?

$$\begin{array}{r} 2\text{ ft }5\text{ in} \\ -\ 2\text{ ft }2\text{ in} \\ \hline \square\text{ ft }\square\text{ in} \end{array}$$

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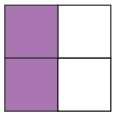
REVIEW & ACTIVITIES

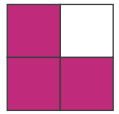
Fill in the missing information. The first one has been done for you.
Then circle the fractions that equal 1.



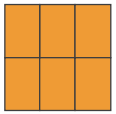
$\frac{2}{4}$ two-fourths

____ _____

____ _____



____ _____



____ _____

____ _____

Lost Digits

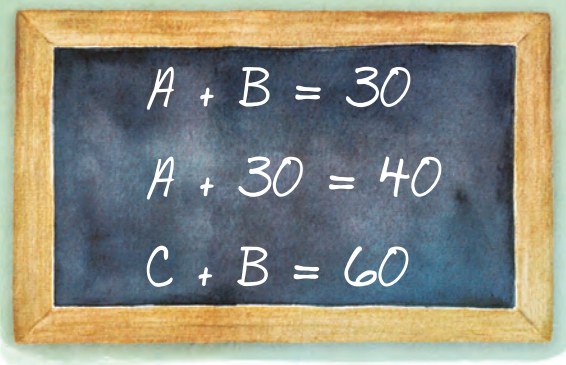
Fill in the blanks for the addition problems with the numbers that make each problem accurate.

$$\begin{array}{r} 51\square,026 \\ +\ \square 75,\square 5\square \\ \hline 7\square 8,4\square 9 \end{array} \qquad \begin{array}{r} 2\square 4,1\square 3 \\ +\ 60\square,82\square \\ \hline \square 98,\square 89 \end{array}$$

Chalkboard Logic

What numbers are A, B, and C? (Hint: One of the problems is easy to figure out. Use that problem to figure out the other problems.)

A = ____ B = ____ C = ____



Shade the thermometer to show 5 °C / 41 °F.

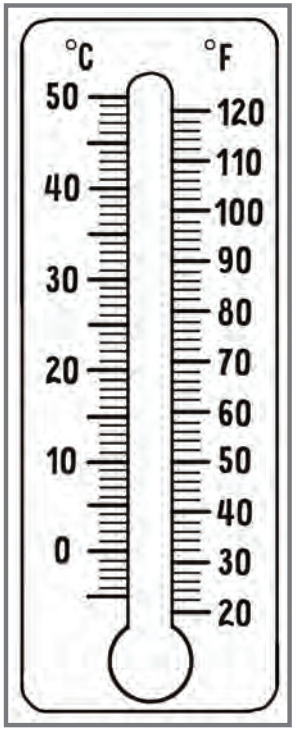


Figure out the skip-counting pattern and write the missing numbers.

7		21	28			49

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

7 × 8	8 × 5	4 × 7	3 × 7	4 × 4	5 × 9
7 × 3	7 × 4	5 × 8	8 × 7	9 × 4	3 × 9

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Lesson 40

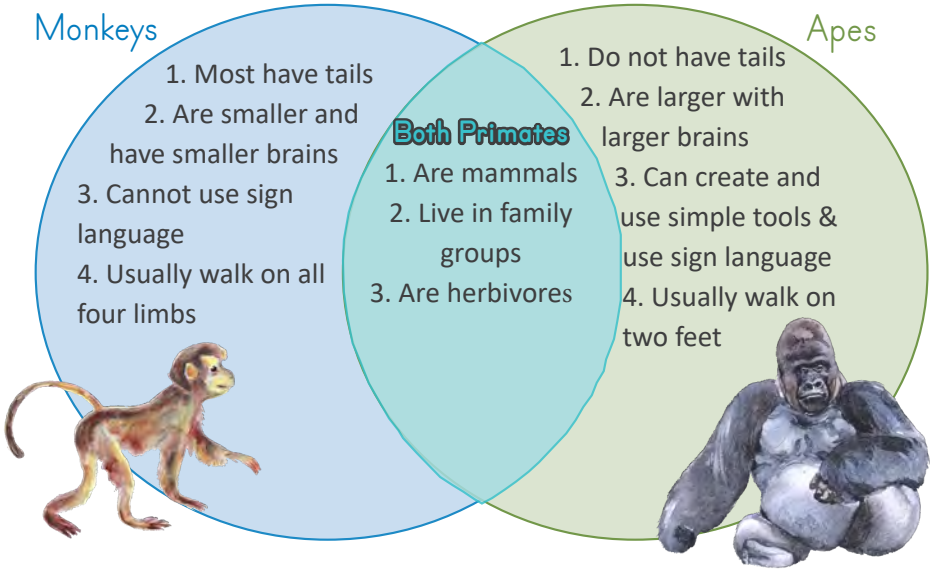
VENN DIAGRAMS

Temperature

Practice these items with the child.

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

○ Read to the child: A Venn diagram is one method for visually showing the similarities and differences between two or more items. Many of the tourists who come on safari ask Winnie questions about the differences between the monkeys and the apes they see, so Winnie created a Venn diagram to show how they are the same and how they differ.


Monkeys
1. Most have tails
2. Are smaller and have smaller brains
3. Cannot use sign language
4. Usually walk on all four limbs
Both Primates
1. Are mammals
2. Live in family groups
3. Are herbivores
Apes
1. Do not have tails
2. Are larger with larger brains
3. Can create and use simple tools & use sign language
4. Usually walk on two feet

Use the diagram to answer the following questions aloud.

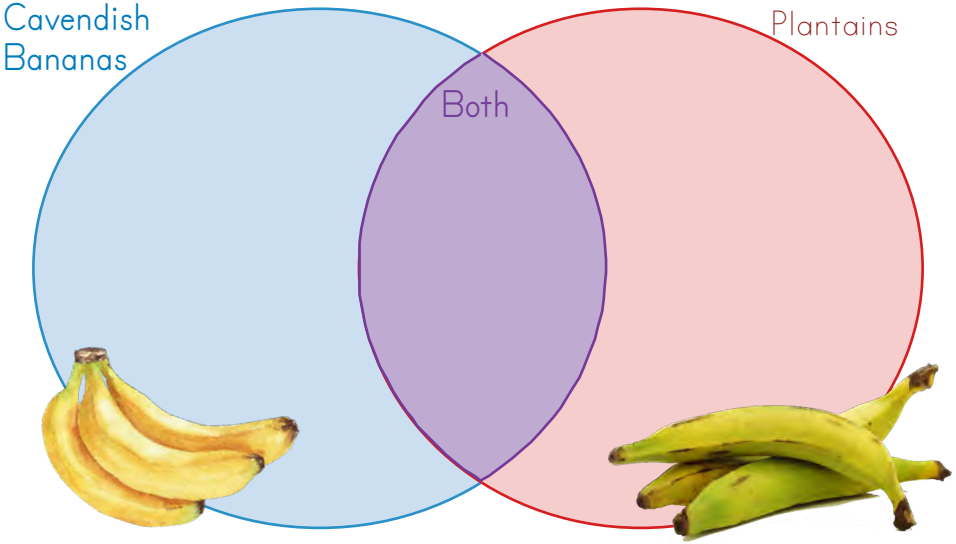
- What are two things monkeys and apes have in common?
- What is one way that apes are different from monkeys?

○ Set out three colored pencils (blue, purple, red). A favorite food in Uganda (enjoyed by monkeys, apes, and humans) is bananas. As many as 94 varieties are grown there! We are going to create a Venn diagram that compares two types of bananas grown in Uganda. We'll use a blue colored pencil to underline facts unique to Cavendish bananas, red for facts about plantains, and purple for facts that apply to both. Then we'll sort the facts into the correct sections of the diagram below.

You are probably familiar with Cavendish bananas, which are the sweet yellow bananas sold in the United States. Cavendish bananas can be eaten raw or cooked. Once the banana is ripe, the skin is soft and easy to peel.

Plantains, the most commonly eaten fruit in Uganda, can also be found in the US. They are longer and wider than Cavendish bananas. The skin is thicker and does not peel easily, even when the fruit ripens. The fruit itself is starchy and unsweetened, similar to a potato, so it is almost always eaten cooked or fried, not raw.

Both Cavendish bananas and plantains come from the Musa plant family and have a long, curved shape. They start green, ripen to yellow, and finally turn brown when they are over-ripened.



In each section of the Venn diagram, write one or two items from the paragraph that you underlined. The child needs to write only one item in each section.

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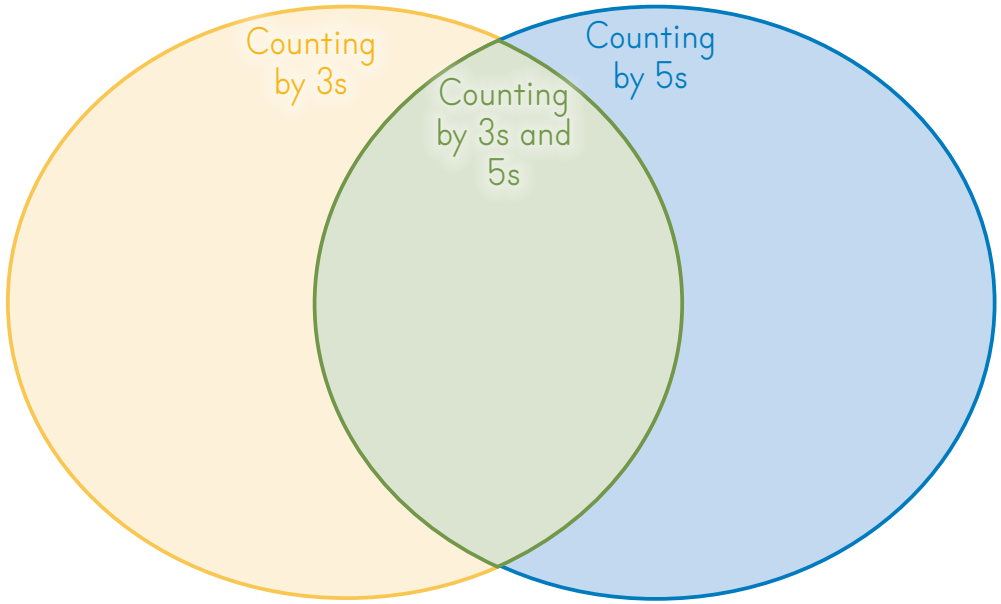
LESSON PRACTICE

Skip-Counting Patterns

Circle the numbers that are the same when skip counting by both 3s and 5s. Then write each number from the boxes in the correct section of the Venn diagram.

3	6	9	12	15
18	21	24	27	30
33	36	39		

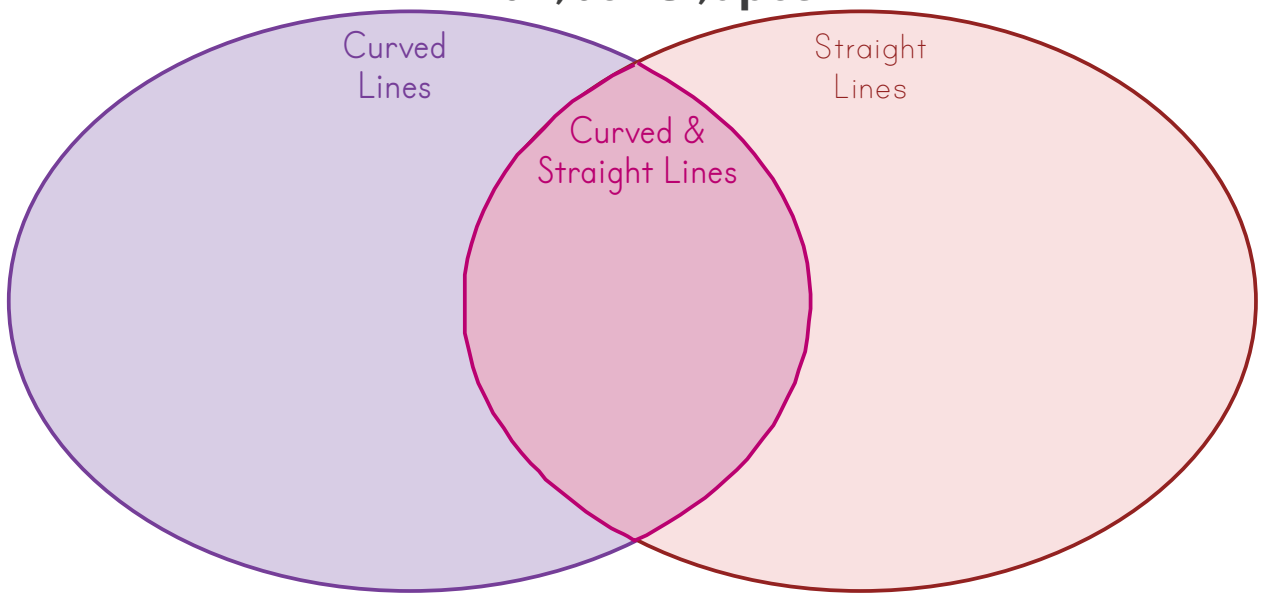


5	10
15	20
25	30
35	40

Number Shapes

Write each number in the correct section of the Number Shapes Venn diagram. Sort the number shapes based on how they look in the boxes here.

1	2	3
4	5	6
7	8	9



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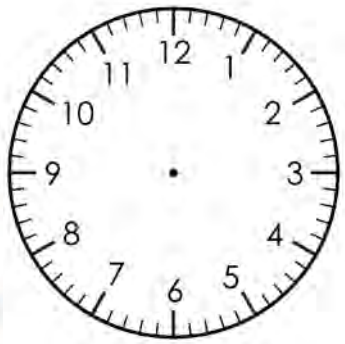
REVIEW & ACTIVITIES

Draw hands on the clock to match the time shown on the digital clock.



Winnie spent 38 minutes making beads and necklaces today. She finished her work at 2:42 PM. What time did she start?

end time	2:42
elapsed time	− :38
start time	

For each digital clock, write the time given.

half past two

quarter past six

quarter to five

quarter after nine

For each addition problem, write the numerals shown in expanded form in the green box and complete the problem.

7,000 + 80 + 2

$$\begin{array}{r} \boxed{\,,} \\ +\ 1{,}274 \\ \hline \end{array}$$

5,000 + 700 + 40

$$\begin{array}{r} \boxed{\,,} \\ +\ 3{,}178 \\ \hline \end{array}$$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section. ☐

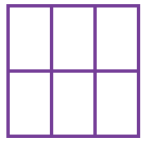
$$\begin{array}{r} 3 \\ \times\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 9 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 4 \\ \times\ 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ \times\ 7 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 7 \\ \times\ 4 \\ \hline \end{array}$$

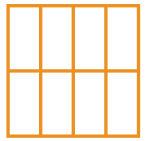
Even or Odd? Circle all the products (answers) above that are EVEN.

Shade each shape to show the fraction and write the fraction in the boxes. Then circle the fraction that is equivalent to one-half.

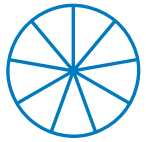
two-sixths



four-eighths



four-ninths



Add or subtract to complete each problem and then match the answer to its equivalent measure in inches.

$$\begin{array}{r} 1\ \text{ft}\ 2\ \text{in} \\ +\ 1\ \text{ft}\ 3\ \text{in} \\ \hline \text{ft}\quad \text{in} \end{array}$$

34 in

$$\begin{array}{r} 4\ \text{ft}\ 11\ \text{in} \\ -\ 2\ \text{ft}\ \ 1\ \text{in} \\ \hline \text{ft}\quad \text{in} \end{array}$$

39 in

$$\begin{array}{r} 4\ \text{ft}\ 6\ \text{in} \\ -\ 1\ \text{ft}\ 3\ \text{in} \\ \hline \text{ft}\quad \text{in} \end{array}$$

29 in

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Lesson 41

COUNTING AND ADDING MONEY AND MAKING CHANGE

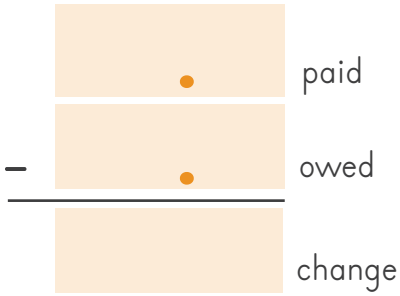
Mental Math & Money

- How many nickels are in a dollar? In 2 dollars?
- How many dimes are in a dollar? In 3 dollars?
- How many quarters are in a dollar? In 4 dollars?

○ Read to the child: Tombe, Winnie, and their parents are taking some things to sell at the market. They brought along some money to make it easier to make change. How much money did they bring? Count the money by starting with the largest bills and coins. Then write the amount below. We will use US dollars today to practice counting.

○ Read to the child: Tombe sold two boxes of veggies and earned the amount of money shown below. Write the amounts, including a dollar sign, in the boxes. The value of coins less than $1.00 goes on the right side of the decimal point. The whole dollar amounts are written to the left of the decimal. Now add the amounts together to find out how much money he earned altogether. Write a decimal point in the answer directly below the decimal points in the problem.

○ Read to the child: Winnie sold three bracelets for $12.20. The customer paid her $15.25. How much money does Winnie need to give back in change? First, write the amounts in the correct boxes. Then subtract the amount owed from the amount paid to find the amount of change Winnie needs to give the customer. Remember to write a decimal point in your answer below the decimal points in the problem. Circle the bills and coins that Winnie should use to return the change using the fewest number of bills and coins possible.



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Mama sold a bouquet of flowers for $11.35, and her customer paid $12.50. Write the amounts in the correct places and subtract. How much change does she need to give back to the customer? Remember to write a decimal point in your answer.

paid

owed

change

Then circle the coins needed for change by using the least number possible. Start with the quarters, then dimes, and then nickels. If using another high value coin would be too much change, then go to the next highest value coin.

Tombe's father sold some fish for $=27.18. The customer paid with the bills and coin shown below. How much did the customer pay? Write the amount below and include the dollar sign. Line up the decimal points. Then use subtraction to find how much change is owed.

paid

− $27.18 owed

change

LESSON PRACTICE

Circle the bills and coins needed to equal the amount. Use the least number of coins. (Hint: Circle the coins with the highest value first.)

$12.93

Add these amounts of money together, and then compare the amounts using <, >, or = symbols.

$25.61 + $33.57 ◯ $34.09 + $26.70

$42.33 + $12.48 ◯ $10.82 + $48.23

Change!

Find the amount of change needed using subtraction. Then check your answer using addition.

Mom bought a headscarf for $13.38. She gave the seller $15.50. How much change will she receive?

$15.50 paid

− $13.38 owed

change

Dad bought a new line for his fishing pole for $4.12. He gave the seller $4.50. How much change will he receive?

$4.50 paid

− $4.12 owed

change

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REVIEW & ACTIVITIES

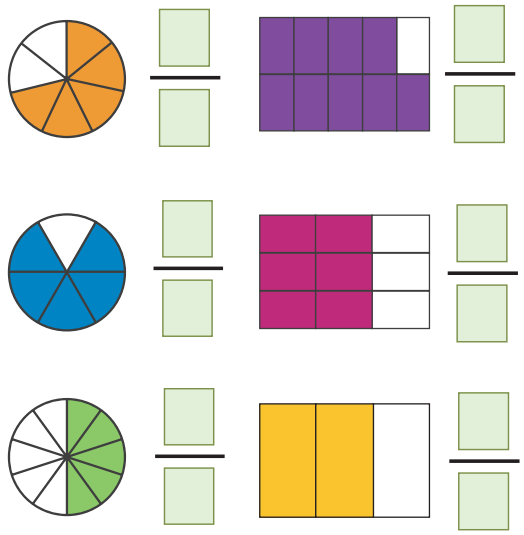
E·x·p·a·n·d·e·d FORM

Mount Stanley is the highest mountain in Uganda. It rises to 16,762 feet. Write 16,762 in expanded form.

This waterfall is on Mount Elgon, an extinct volcano on the border of Uganda and Kenya. The mountain's highest point is 14,177 feet. Write 14,177 in expanded form.

Complete 16,762 + 14,177 =

Write the fractions that represent the amounts shaded. Circle the fraction that is equal to one-half.



Complete the conversions.

1 ft = ____ in	1 yd = _____ ft

How many inches tall is the basket?

2 ft 7 in

	in
+ 7	in
	in

Write the missing numbers to create addition problems going across each row and down each column. (Hint: Solve 6 + ___ = 13 first.)

ADDITION

		7
6 +		= 13
	12	

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4	3	5	5
× 7	× 9	× 4	× 8
7	9	4	8
× 3	× 4	× 4	× 7

Figure out the skip-counting patterns and write the missing numbers.

7, _____, 21, 28, _____, _____

60, _____, 50, 45, _____, 35, _____, _____

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Lesson 42

TIME: 5- AND 10-MINUTE INTERVALS

Calendar

- Have the child fill out the calendar chart in the math box.
- Which month comes before April? After June?

Skip Counting

- Have the child skip count by 3s from 72 to 102.
- Have the child skip count backward by 25s from 200 to 0.

○ Read to the child: Tombe and Winnie woke up eager to attend the Nile River Festival that takes place every year in Uganda. The Nile River Festival is an exciting event that celebrates the beautiful features of the river. The clock shows what time Tombe and Winnie plan to arrive at the festival. Write the time shown on the clock.

past

after

: AM

This time is read as *nine twenty*. Another way to say this time is 20 *past* 9 or 20 *after* 9 because 20 minutes have already gone by after the 9th hour. *Past* and *after* are terms often used for minutes 1 through 30.

Kayaking, rafting, and mountain biking are just a few of the activities that occur at the Nile River Festival. Winnie's favorite activity is the mountain bike race. This event takes place down off-road tracks along the riverbanks. The winner finished at the time shown on the clock. Write the time in the space provided.

to

till

: AM

This time is read as *ten fifty-five.* Another way to say this time is 5 *to* 11 or 5 *till* 11 because it will be 11:00 AM in 5 minutes. *To* and *till* are terms often used for minutes from 31 through 59.

○ Read to the child: Point to each clock and say the time that each event starts by using one of the terms in blue to say the appropriate time. Read the underlined sentences in the previous column again, if needed, at any point during the exercise.

Live Music 12:40 PM
till / past

Barbecue 1:10 PM
after / till

Rafting 8:25 AM
after / to

Kayaking 1:55 AM
till / past

Paddle Boarding 3:05 PM
after / till

Prize Giving 7:50 PM
after / to

○ Have the child draw hands on the clocks to show the times indicated.

5 past 3

10 to 7

25 after 1

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LESSON PRACTICE

Fill in the blanks with the correct numbers and circle the correct term to describe the time.

____ past / to ____

____ after / till ____

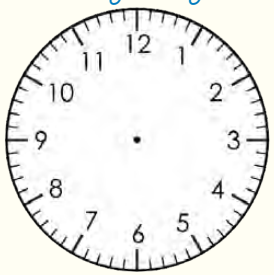
____ past / to ____

____ after / till ____

Draw hands on the clocks to show each time.

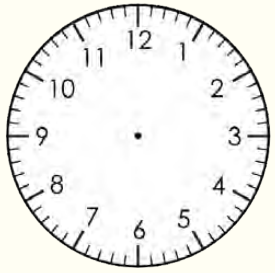
Kayaking

10 past 6



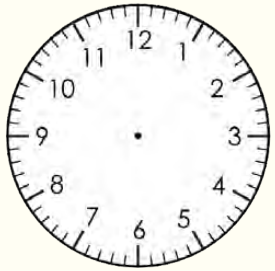
Paddle Boarding

5 after 9



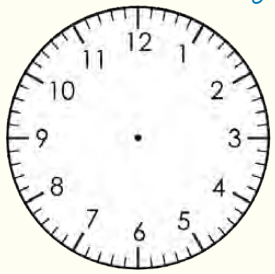
Rafting

10 to 6



Mountain Biking

5 till 9



REVIEW & ACTIVITIES

Write the answers to the multiplication facts.

4	4	8	5	4	9	5	9
× 7	× 4	× 7	× 4	× 9	× 3	× 8	× 5

The multiplication facts above are hidden in the chart below. Find the facts, circle them, and write the multiplication and equal symbols where they go. Facts can be horizontal, vertical, or diagonal. The first one is completed as an example.

9	54	3	4	32	4	7
5	4	4	43	8	7	56
45	4	1	7	20	6	4
6	16	20	3	28	5	40
8	5	68	24	4	8	54
9	3	27	3	27	40	21
4	9	36	9	3	45	8

A kayak at the festival is 2 feet wide. What is its width in inches?

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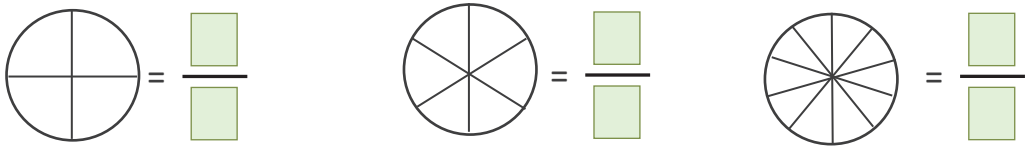
Shade in half of each of the circles below. Then write the fraction that represents the amount shaded.



Circle all five fractions that are equal to one-half. In fractions that equal one-half, the numerator (top number) should be half of the denominator (bottom number).

$\frac{2}{4}$ $\frac{4}{5}$ $\frac{5}{8}$ $\frac{2}{3}$ $\frac{3}{7}$ $\frac{5}{10}$ $\frac{1}{3}$ $\frac{3}{4}$ $\frac{2}{5}$ $\frac{4}{9}$ $\frac{8}{10}$ $\frac{4}{8}$ $\frac{1}{2}$ $\frac{3}{6}$ $\frac{7}{9}$

Complete the problem.

There are 66 kayaks in the race. Tombe saw 32 green kayaks, and Winnie saw 19 red kayaks. How many kayaks did they not see?

seen by Tombe ____ + seen by Winnie ____ = total seen by siblings ____

total in race _____ − total seen ____ = total not seen ____

Complete the problem.

There are 60 minutes in an hour. Tombe and Winnie ate for 21 minutes and watched the air ramps for 33 minutes. How many minutes are left in the hour?

Write the number of kilometers that are represented by the number of meters at the front of each kayak. Refer to page iv if needed.

Write the number of meters that are represented by the number of centimeters at the front of each kayak. Refer to page iv if needed.

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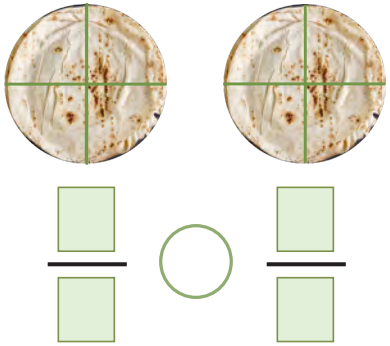
Lesson 43

COMPARING AND ORDERING FRACTIONS

Mental Math & Money

- How many nickels are in a dollar? In 3 dollars?
- How many dimes are in a dollar? In 4 dollars?
- How many quarters are in a dollar? In 5 dollars?

○ Read to the child: *Chapati* is a popular bread in Uganda. It is commonly served alongside stews, vegetables, and meats. Follow the steps:



1. Shade 1 part in the first piece of chapati bread and 3 parts in the second.
2. Write the fraction of shaded parts below each chapati.
3. Use the correct symbol (<, >, or =) to fill in the comparison bubble.

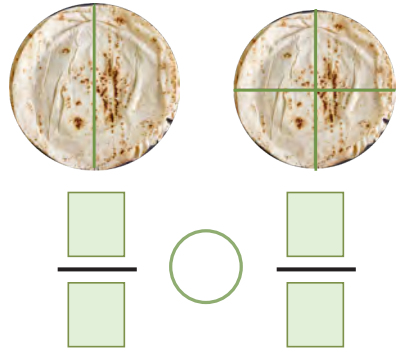
Point to the denominators (bottom numbers) in the purple fractions. Are they the same? Point to the numerators in the fractions. Notice they are different.

$\frac{1}{4} < \frac{3}{4}$

<u>When the denominators are the same, we only need to compare the numerators to see which fraction is greater.</u> If the denominators are the same, the fraction with the larger numerator is greater. When fractions have equal denominators, the parts are equal sizes. A larger numerator means you are referring to more pieces. Compare these fractions by using the correct symbols (<, >, or =) to fill in the comparison bubbles.

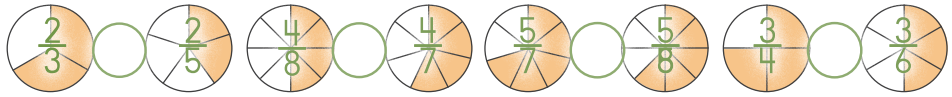
$\frac{3}{9} \bigcirc \frac{1}{9}$ $\frac{4}{6} \bigcirc \frac{5}{6}$ $\frac{4}{5} \bigcirc \frac{3}{5}$ $\frac{4}{7} \bigcirc \frac{3}{7}$

○ Read to the child: Follow the steps:



1. Shade in 1 part of each chapati.
2. Write the fraction of shaded parts below each chapati.
3. Based on the amount shaded, use the <, >, or = symbol to fill in the comparison bubble.

Notice that this time the numerators are the same and the denominators are different, $\frac{1}{2}$ and $\frac{1}{4}$. <u>When the numerators are the same, the fraction with the *smaller* denominator is greater because each part is bigger.</u> Compare these fractions by using the correct symbol (<, >, or =) to fill in the comparison bubbles.



Dare to Compare

○ Take the 6-sided dice from the math box. For each round you and the child each roll the dice and find the fraction with the number you rolled. For example, if you roll a 1 in Round 2, your fraction will be $\frac{1}{9}$. Have the child determine the winner of the round by who has the greater fraction. If you and the child roll the same number, you both roll again.

	1	2	3	4	5	6
Round 1	$\frac{3}{9}$	$\frac{3}{4}$	$\frac{3}{5}$	$\frac{3}{8}$	$\frac{3}{6}$	$\frac{3}{7}$
Round 2	$\frac{1}{9}$	$\frac{4}{9}$	$\frac{7}{9}$	$\frac{3}{9}$	$\frac{8}{9}$	$\frac{5}{9}$
Round 3	$\frac{2}{6}$	$\frac{2}{4}$	$\frac{2}{5}$	$\frac{2}{9}$	$\frac{2}{8}$	$\frac{2}{3}$

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LESSON PRACTICE

Dad ate the most of one chapati. Tombe ate the second most, and Winnie ate the least amount. Write the fractions in the correct boxes.

$\frac{4}{7}$ $\frac{2}{7}$ $\frac{1}{7}$

Dad ☐/☐

Tombe ☐/☐

Winnie ☐/☐

Chapati has several ingredients aside from flour. Water makes up the greatest fraction of the ingredients, then oil, and the least amount is salt. Place the fractions in the correct boxes.

$\frac{3}{11}$ $\frac{3}{8}$ $\frac{3}{10}$

Water ☐/☐

Oil ☐/☐

Salt ☐/☐

Fill in the comparison bubbles with the correct symbol (< or >).

$\frac{3}{5}$ ◯ $\frac{2}{5}$ $\frac{1}{3}$ ◯ $\frac{2}{3}$ $\frac{2}{4}$ ◯ $\frac{1}{4}$

$\frac{7}{9}$ ◯ $\frac{7}{8}$ $\frac{3}{6}$ ◯ $\frac{3}{4}$ $\frac{2}{3}$ ◯ $\frac{2}{7}$

$\frac{5}{6}$ ◯ $\frac{3}{6}$ $\frac{4}{7}$ ◯ $\frac{6}{7}$ $\frac{3}{5}$ ◯ $\frac{3}{4}$

REVIEW & ACTIVITIES

Answer the questions. Then round the number to the nearest **hundred**.

Write the digit in the thousands place. ☐

Write the digit in the tens place. ☐

249,643

☐ rounded amount

Change!

Complete the problems, using the whiteboard if needed.

$14.50 (41) amount paid
− $13.38 cost of item
☐ change

$17.50 amount paid
− $12.36 cost of item
☐ change

John bought a hamster wheel for $25.95. He paid $29.05. How much change will he receive? ☐

Tori bought a hamster for $19.75. She paid $20. How much change will she receive? ☐

Josh bought a bird for $38.50. He paid $40. How much change will he receive? ☐

Complete the addition and subtraction problems.

6,568 + 4,398

7,162 − 3,239

$47.84 + $14.37

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Tombe and Winnie bought ingredients for chapati at the market and took the long way home to enjoy nature. Figure out the answer to each multiplication problem and follow the path that contains the correct answer. Continue on until the siblings get home. Use your pencil to mark the path they take.

27	7 × 4	16	8 × 5	14	9 × 3	56	9 × 3
56	45	28	36	56	28	21	27	40
8 × 7	21	7 × 3	36	9 × 4	56	8 × 7	28	8 × 5
16	28	56	28	45	45	20	28	20
9 × 5	27	7 × 4	40	7 × 3	16	7 × 4	24	4 × 4
36	45	40	20	21	16	36	32	12
9 × 4	40	4 × 5	21	4 × 4	45	7 × 3	20	4 × 5
27	56	16	25	21	64	21	2	16
9 × 3	56	8 × 7	40	8 × 5	28	7 × 4	1	4 × 4

Start

Multiplication Maze

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Lesson 44

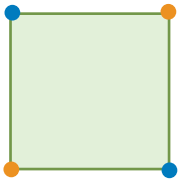
MORE SYMMETRY

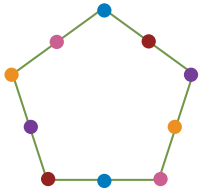
Telling Time

What are two ways to say each time shown on the clocks?

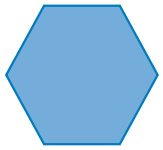
Read to the child: You have learned about ***reflectional symmetry,*** which is when two halves of a shape reflect each other like a mirror image. You've been practicing with horizontal and vertical lines of symmetry. Draw two lines of symmetry on the first square.

Today, we will look at diagonal or ***oblique*** lines of symmetry. On the second square, draw a slanted line connecting the two blue dots. Is this a line of symmetry? Yes, if you fold the square on this line, the sides would match up perfectly. Draw a slanted line connecting the two orange dots. Do you have reflectional symmetry when you divide the square with these lines? Yes, because squares have 4 lines of symmetry. A regular pentagon has 5 sides and 5 lines of symmetry. Draw all 5 lines of symmetry on the pentagon by connecting the matching colored dots.

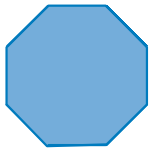




The number of possible lines of symmetry in a regular polygon is equal to the number of sides. If a square has 4 lines of symmetry and a regular pentagon has 5 lines of symmetry, how many lines of symmetry do a regular hexagon and regular octagon have? Draw the lines and write the answers below.



= _____ lines of symmetry



= _____ lines of symmetry

Read to the child: One day while drawing shapes in the sand, Tombe noticed that when he walked around some shapes, they looked the same. ***Rotational symmetry*** is when an image can be turned less than one full turn and still look the same. Notice the star below has been rotated 5 times and still looks the same each time. It has rotational symmetry.

Next, Tombe drew a square. Does this shape have rotational symmetry? Yes, when it is turned a quarter turn, the shape looks exactly the same as the first square. (The blue line is to show the shape has turned.)

Then Tombe drew a triangle. Does this shape have rotational symmetry? No, this triangle never looks the same until it rotates back to the starting point, so it does not have rotational symmetry.

Activity: Spin and Fold Symmetry: Cut out the shapes on the next page. Have the child rotate each shape (a quarter turn at a time) all the way around and answer yes or no for whether the shape has rotational symmetry. If the shape doesn't look the same until you get back to the starting point, then it does not have rotational symmetry. Next, have the child fold and crease the paper shapes along each line of reflectional symmetry (reopening the fold each time).

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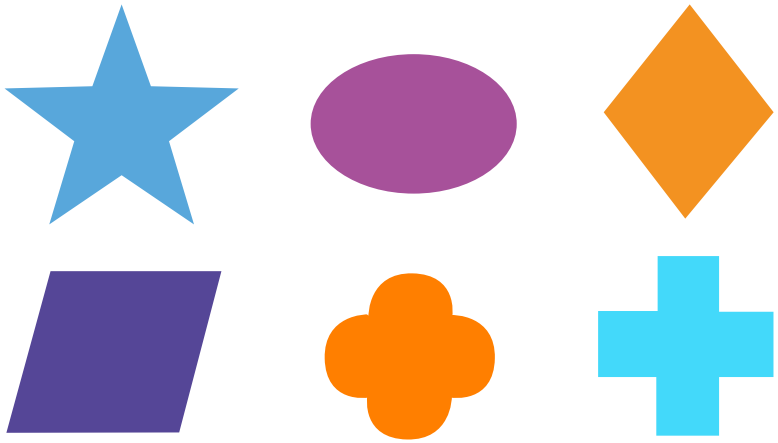
LESSON PRACTICE

Draw lines of symmetry on the shapes below. Be sure to check for oblique (diagonal) lines of symmetry.



Take the following shapes from the math box. Rotate each piece to see if it has rotational symmetry and circle YES or NO. Then draw lines of symmetry on the shapes below.

YES / NO

YES / NO

YES / NO

YES / NO

YES / NO

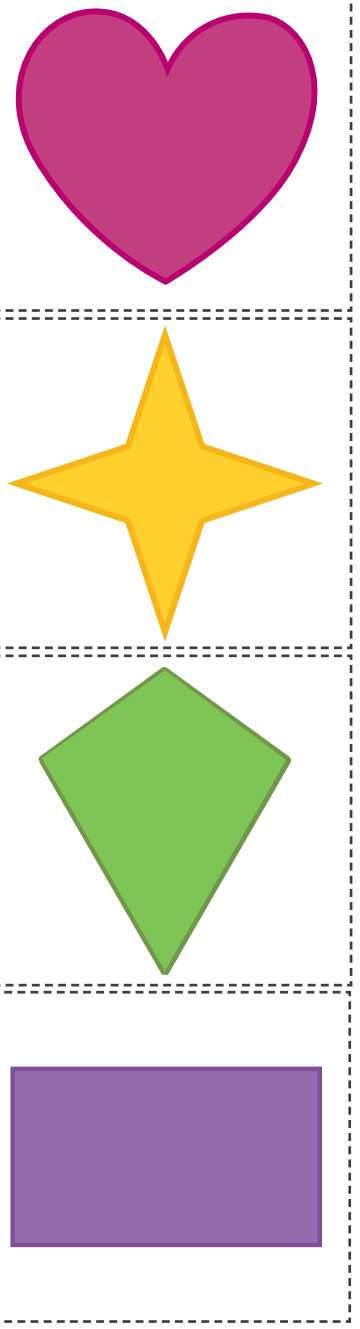
YES / NO

Take the shapes shown below from the math box. Then create a hexagon as many ways as you can using different combinations of these shapes. There are nine possible answers. Put a check mark in a box for each combination you find.

Use these shapes:

6	3	2	1
Triangles	Rhombuses	Trapezoids	Hexagon

Spin and Fold Symmetry



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REVIEW & ACTIVITIES

This space is left blank for double-sided printing.

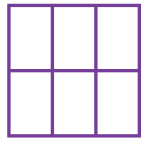
Dare to Compare

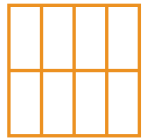
Use the <, >, or = signs to compare the fractions.

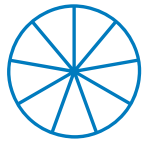
$\frac{3}{9}$ ◯ $\frac{3}{4}$ $\quad$ $\frac{3}{5}$ ◯ $\frac{3}{6}$ $\quad$ $\frac{3}{8}$ ◯ $\frac{3}{7}$

$\frac{4}{9}$ ◯ $\frac{3}{9}$ $\quad$ $\frac{7}{9}$ ◯ $\frac{8}{9}$ $\quad$ $\frac{2}{4}$ ◯ $\frac{2}{5}$

Shade the shapes to show the amount named. Then write the fraction in the blank.

two-sixths  $\frac{\quad}{\quad}$

four-eighths  $\frac{\quad}{\quad}$

four-ninths  $\frac{\quad}{\quad}$

Answer the questions. Then round the number to the nearest **hundred**.

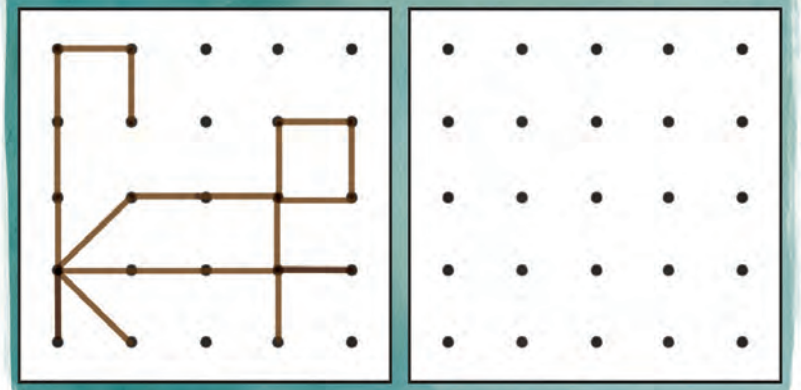
Write the digit in the ten thousands place. ☐

Write the digit in the thousands place. ☐

347,581 ☐

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

5 × 8	4 × 7	3 × 9	5 × 4	8 × 5
8 × 7	7 × 3	9 × 4	4 × 4	9 × 5

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Lesson 45

COMPARING ROUNDED AMOUNTS WITH ACTUAL AMOUNTS

Mental Math & Money

- How many nickels are in a dollar? In 4 dollars?
- How many dimes are in a dollar? In 2 dollars?
- How many quarters are in a dollar? In 3 dollars?

Read to the child: The local markets in Uganda are a wonderful way to explore Ugandan culture. The markets start business early in the morning and stay open until late in the evening, usually staying very crowded throughout the day. There is such a variety of products sold in these markets, most of which are beautiful works of art produced by Ugandans. Some of their most popular and well-known items are shown below.

$29.40 $35.89

Let's suppose you have $83.35 to spend and are interested in purchasing a handwoven basket and a giraffe wood carving. Write the price of each item rounded to the nearest dollar in the green box. Then add the amounts together to find the approximate total cost. Now, add the actual amounts together in the orange box and compare the amounts. In this example, our answers are very close, but the first problem was probably much faster to do. Rounding can help us quickly estimate a total price.

$$\begin{array}{r} \$29.40 \\ +\ \$35.89 \\ \hline \end{array}$$

Now, suppose you are going to pay for those items with the $83.35. Round to the nearest dollar. In this green box, subtract the rounded total you wrote in the first green box from the rounded amount of money you have. Then complete the problem in the orange box that uses the actual amounts of money. How close are your answers?

$$\begin{array}{r} \$83.35 \\ -\ \$65.29 \\ \hline \end{array}$$

Next, you stop at one of the food vendors to buy some sambusas. They cost $12.15. You pay for them with the $18.06 that you have left. In the green box, find the approximate amount of change you will receive by subtracting the price of the sambusas rounded to the nearest dollar from the rounded amount of money you have. Then subtract using the actual amounts in the orange box. How close are your answers? Rounding can help us quickly solve problems.

$$\begin{array}{r} \$18.06 \\ -\ \$12.15 \\ \hline \end{array}$$

Read to the child: Decide which player will be X and which player will be O. Players take turns completing the problems on the whiteboard by rounding to the nearest dollar and then subtracting. After finding an answer, the player may place his or her X or O on the space. The first to get three in a row wins the game!

Round and Subtract then TIC TAC TOE

$8.39 - $6.82	$98.95 - $48.27	$25.05 - $12.75
$56.88 - $33.60	$15.12 - $10.08	$118.01 - $91.99
$74.50 - $22.15	$9.84 - $4.44	$49.12 - $13.49

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LESSON PRACTICE

Tombe and Winnie are rounding and subtracting to find out approximately how much more certain items cost than others at the market. Circle the box that shows who rounded and subtracted correctly.

$14.99 $8.50 $35.51 $9.49

Winnie's Work

$14.99 → $15.00
− $8.50 → − $9.00
$6.00

Winnie's Work

$35.51 → $36.00
− $9.49 → − $10.00
$26.00

Tombe's Work

$14.99 → $15.00
− $8.50 → − $8.00
$7.00

Tombe's Work

$35.51 → $36.00
− $9.49 → − $9.00
$27.00

Refer to the pictures and prices below and on the previous page to answer the following questions. Round each price to the nearest dollar, and then subtract.

$11.65

Approximately how much more does the giraffe wood carving cost than the textile fabric? →

$7.49

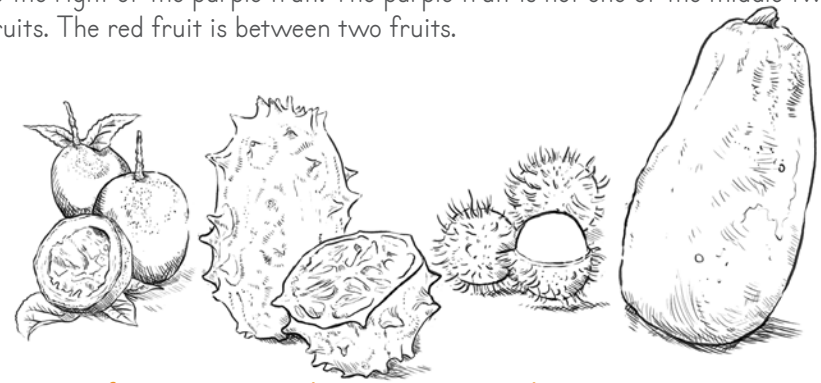
Approximately how much more does the handwoven basket cost than the bowl? →

REVIEW & ACTIVITIES

Fruit Logic

Use the clues to color each fruit from Uganda the correct color. Don't start coloring until you know which color each fruit should be. Tip: Use your red, purple, green, and yellow colored pencils to arrange the colors in the correct order.

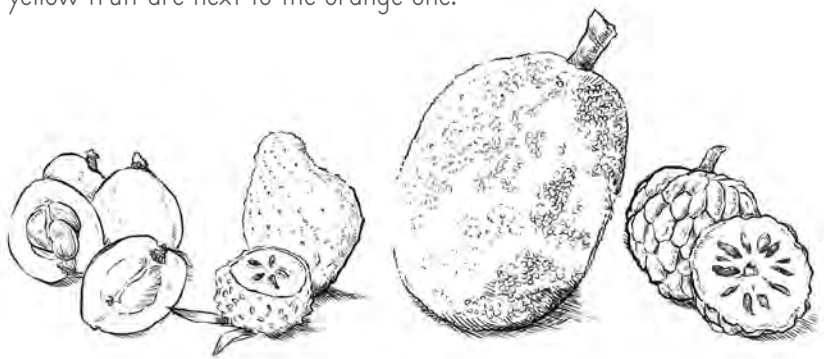
Clues: The green fruit is not next to the purple fruit. The yellow fruit is directly to the right of the purple fruit. The purple fruit is not one of the middle two fruits. The red fruit is between two fruits.



passion fruit kiwano rambutan papaya

Tip: Use your red, orange, green, and yellow colored pencils to arrange the colors in the correct order.

Clues: The orange fruit is at one of the ends. The green fruit is to the left of the yellow one. The yellow fruit is not on an end. Neither the red fruit nor the yellow fruit are next to the orange one.



loquat soursop jackfruit custard apple

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Fill in the comparison bubbles with a < or > symbol.

$\frac{5}{6} \bigcirc \frac{3}{6}$ $\frac{4}{7} \bigcirc \frac{6}{7}$ $\frac{2}{3} \bigcirc \frac{2}{7}$

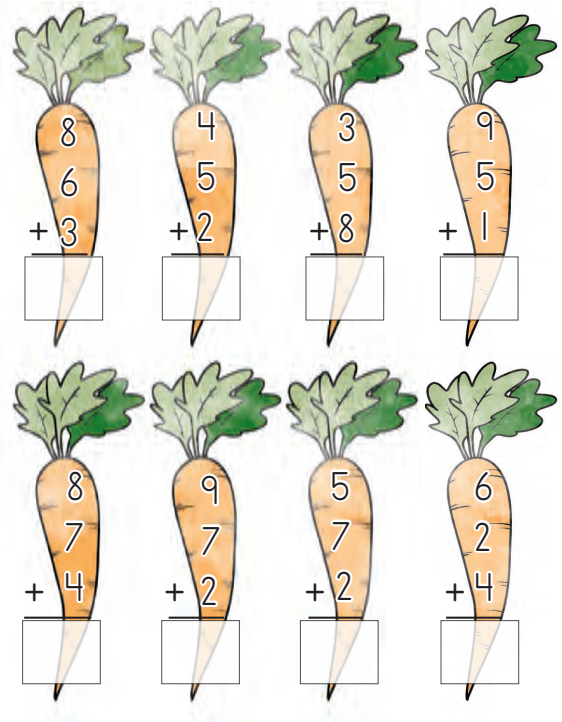
$\frac{1}{3} \bigcirc \frac{2}{3}$ $\frac{3}{6} \bigcirc \frac{3}{4}$ $\frac{3}{5} \bigcirc \frac{3}{4}$

$\frac{3}{5} \bigcirc \frac{2}{5}$ $\frac{7}{9} \bigcirc \frac{7}{8}$ $\frac{2}{4} \bigcirc \frac{1}{4}$

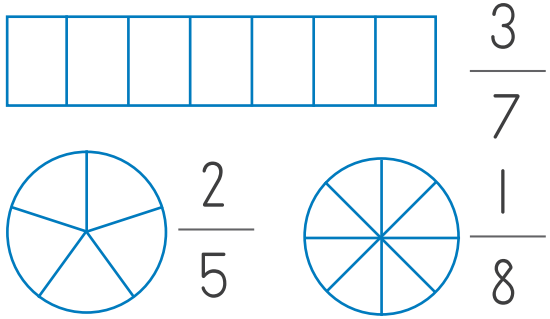
Figure out the skip counting patterns and write the missing numbers.

133		139	142		
7		21	28		

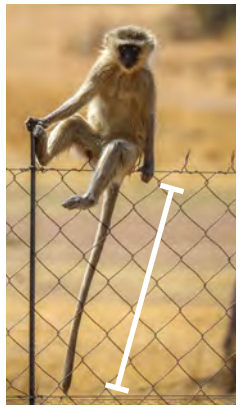
Add the amounts on each carrot and write the answer at the bottom. Circle the carrot that adds up to the highest number.



Shade each shape according to the fraction shown.



$\frac{3}{7}$ $\frac{2}{5}$ $\frac{1}{8}$



Vervet monkeys live in Uganda. How many total inches long is this vervet monkey's tail?

2 ft 2 in + 2 in = ____ in

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 7	3 × 9	7 × 8	5 × 8
7 × 3	9 × 4	4 × 4	4 × 5

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Lesson 46

TWO-STEP STORY PROBLEMS WITH MONEY

Telling Time

How many seconds are in a minute? How many minutes are in an hour? How many hours are in a day? What day comes before Thursday?

Mental Math

- Skip count by 8s from 8 to 80.
- Skip count by 25s from 25 to 500.

Read to the child: Ten-year-old Mia lives in Quebec City, Canada, with her parents and a little dog named Gigi. They love to walk through the old parts of the city. Today, Mama and Mia are planning a birthday party for Papa and need to buy some supplies from different shops in town. Follow their path through the town on the map on the next page as you help complete the story problems.

At the post office, Mama purchased stamps for $18.40 and envelopes for $6.35 so she could mail out invitations. She paid the cashier $30.75. How much change will she receive? First, add the amounts of her purchases together to find the total cost. Then subtract the total cost from the amount paid to find the amount of change.

$18.40 stamps
+ $ 6.35 envelopes
total cost

$30.75 paid
− ____ total cost
change due

Next, they stopped at the bookstore, and Mia bought a book with beautiful images of Canada's national parks as a gift for Papa. It cost $24.96. She also bought a journal for $8.72. If the cashier gave her $1.32 in change, how much did she give the cashier? Add all the amounts together to find the answer.

$24.96 book
+ $ 8.72 journal
total cost

____ total cost
+ $1.32 change
amount paid

At the market by the park, Mama bought some apples for $4.36 and peaches for $3.92. One of the apples had a worm in it, so Mama got a refund (money back) of $0.75. How much did she spend for the fruit altogether? Complete the problems below. Will you add or subtract the refund from the total cost? Write the correct sign before solving.

____ apples
+ ____ peaches
total cost

____ total cost
$0.75 refund
amount paid

Next, they stopped at the pet store. Mia had $12.25 remaining to spend. She bought a toy for $3.47 and Gigi's dog food for $8.15. How much money did she have left?

Finally, at the bakery Mama ordered butter tarts for $12.75, sweet bannock bread for $6.65, and a blueberry grunt pie for $9.20. How much did the items cost altogether?

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LESSON PRACTICE

Mia and her parents love some of the lovely outdoor cafes in Quebec, especially one called Cousins Cafe. Use a whiteboard to complete each problem, and then write the answer in the box. Reference the menu below.

1. How much would it cost to buy the three most expensive items on the menu?

2. If someone bought a Caesar salad and pea soup, then paid $20.75, how much change would they receive?

3. After paying for a cheese plate and baked beans, you have $12.24 left. How much money did you start with?

REVIEW & ACTIVITIES

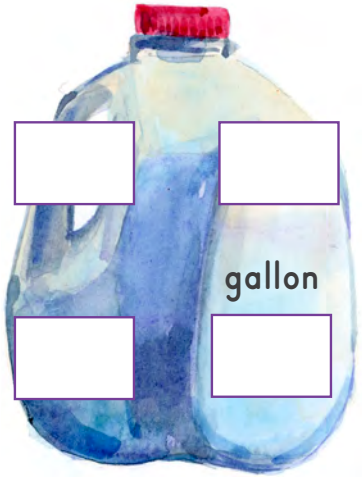
Read the sentence in the green box two times aloud. Then try to recite the sentence without looking at it.

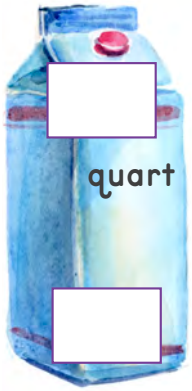
There are 2 cups in a pint, 2 pints in a quart, 4 quarts in a gallon.

Draw two lines to divide the gallon in fourths. Then write Q (for quart) on each fourth to show that there are four quarts in a gallon.

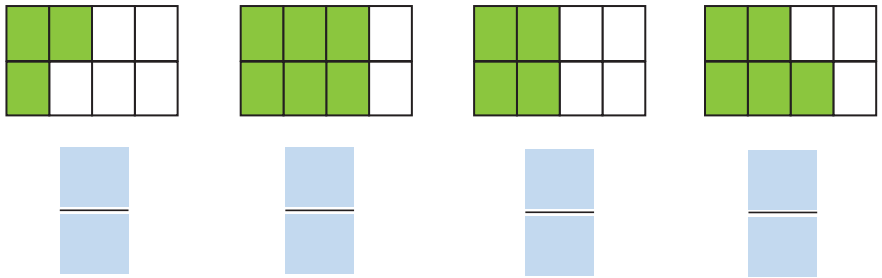
Draw a line to divide the quart in half. Then write P (for pint) on each half of the quart to show that there are two pints in a quart.

Draw a line to divide the pint in half. Then write C (for cup) on each half of the pint to show that there are two cups in a pint.





Write a fraction to show the amount that is shaded in each shape. Circle the shape that has the greatest fraction.



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Mia is helping her mom make maple baked beans for her church social. They use two bags of beans.

One bag of beans has 349 beans. Round 349 to the nearest hundred.

The other bag is smaller and has 214 beans. Round 214 to the nearest hundred.

About how many beans are there altogether? Add the **rounded** numbers from the other green boxes together.

For each digital clock, write the time given.

quarter past six

quarter to nine

ten past four

ten till seven

five after six

quarter to five

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have completed the problems in this section, which covers Set A and Set B multiplication facts as well as the 2s and some of the 10s.

3 × 3	2 × 8	3 × 4	6 × 4	4 × 4	6 × 6	8 × 8	8 × 4	5 × 3	9 × 9
7 × 4	2 × 7	9 × 5	8 × 5	9 × 4	10 × 0	8 × 7	7 × 3	2 × 4	4 × 5
2 × 5	9 × 3	5 × 5	2 × 6	8 × 8	10 × 6	8 × 4	2 × 9		

Measure the toothpick in centimeters and millimeters.

cm = mm

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Lesson 47

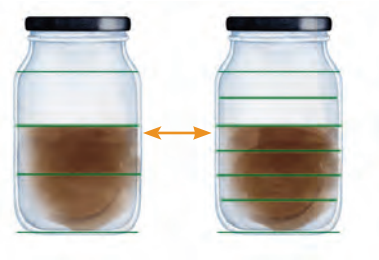
EQUIVALENT FRACTIONS

Calendar

Take the calendar chart from the math box.

- Write the number of days in each month during a leap year. How many days are in February?
- Which month is the 10th month? 7th month?

○ Punch out the fraction bars on the Lesson 47 page of the Appendix to prepare for the lesson. Read to the child: Canada has an abundance of maple trees, which is why about 85% of the world's maple syrup is produced there.



To the right, write the fraction that represents the maple syrup in each jar. Notice how each jar has the same amount of syrup but is shown by a different fraction. When two fractions represent the same amount, they are called equivalent fractions. ***Equivalent fractions*** are different fractions that represent the same amount.

$\frac{\square}{\square}$ is the same as $\frac{\square}{\square}$

Let's look at another example of equivalent fractions. The amount of syrup Mia had left is shown in the jar. Shade the second jar with an equivalent amount of syrup. Then write the fractions representing the maple syrup below each jar.

$\frac{\square}{\square}$ is the same as $\frac{\square}{\square}$

Another way we can find equivalent fractions, other than using pictures, is by multiplying the numerator and the denominator by the same number. Multiply both the numerator and denominator by 2 and fill in the blanks to find an equivalent fraction for $\frac{1}{3}$.

$$\frac{1}{3}\ \begin{matrix}\times 2\\ \times 2\end{matrix} = \frac{\square}{\square}$$

Hand the child the fraction bars you punched out. Use the fraction bars to check your work. Lay one of the $\frac{1}{3}$ pieces in front of you. Then take two of the $\frac{1}{6}$ pieces (since your answer was $\frac{2}{6}$) and position them directly underneath the $\frac{1}{3}$ piece. Do you see how they line up perfectly and are the exact same amount? They are equivalent!

Practice finding equivalent fractions by multiplying the numerators and denominators by the numbers shown. Then use the fraction bar punch-outs to check your work.

$$\frac{2}{3}\ \begin{matrix}\times 2\\ \times 2\end{matrix} = \frac{\square}{\square} \qquad \frac{1}{2}\ \begin{matrix}\times 3\\ \times 3\end{matrix} = \frac{\square}{\square}$$

○ Using the fraction bar punch-outs, have the child find a fraction that is equivalent to $\frac{1}{2}$.

$\frac{\square}{\square}$ is the same as $\frac{\square}{\square}$

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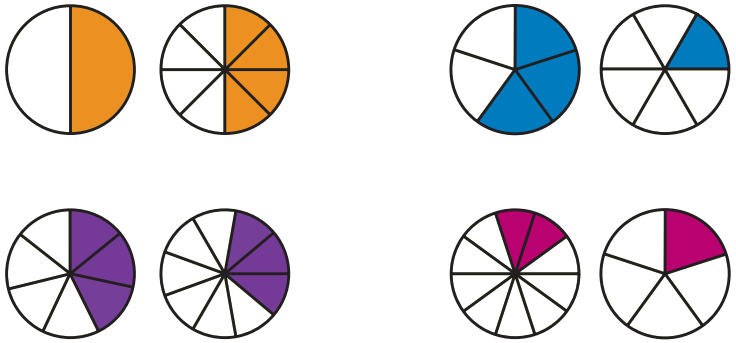
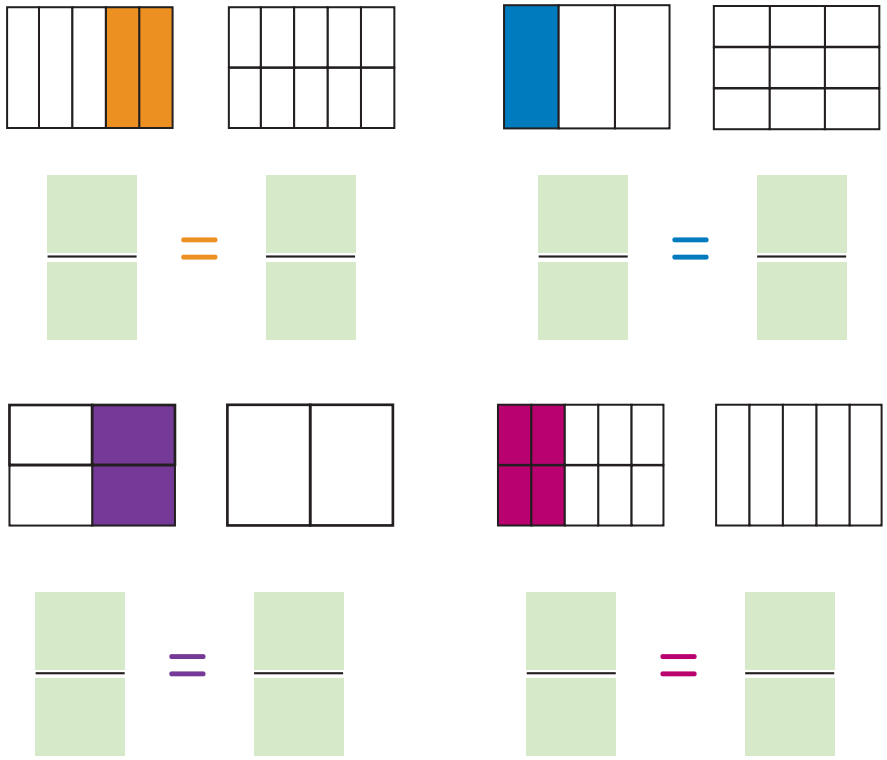
LESSON PRACTICE

Circle the pairs of fractions that are equivalent.



Shade in the correct amount to show an equivalent fraction. Then write the fraction that is shaded under each picture.



Riddle Time

Determine each equivalent fraction. Then follow the directions below to answer the riddle.

$\frac{1}{5} \times 2 = \frac{\quad}{\quad}$ r

$\frac{1}{5} \times 2 = \frac{\quad}{\quad}$ o

$\frac{1}{3} \times 3 = \frac{\quad}{\quad}$ h

$\frac{1}{3} \times 3 = \frac{\quad}{\quad}$ y

$\frac{2}{3} \times 2 = \frac{\quad}{\quad}$ t

$\frac{2}{3} \times 2 = \frac{\quad}{\quad}$ e

$\frac{2}{4} \times 2 = \frac{\quad}{\quad}$ t

$\frac{2}{4} \times 2 = \frac{\quad}{\quad}$ u

$\frac{1}{6} \times 2 = \frac{\quad}{\quad}$ r

$\frac{1}{6} \times 2 = \frac{\quad}{\quad}$ b

$\frac{1}{2} \times 5 = \frac{\quad}{\quad}$ a

$\frac{1}{2} \times 5 = \frac{\quad}{\quad}$ o

Figure out the answer to the riddle by writing the letter shown next to each number on the answer lines to the riddle.

I am something that is lighter than a feather and yet harder to hold. What am I?

9	10	8	2

12	2	6	5	4	3

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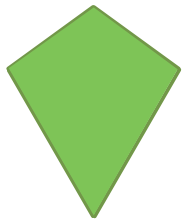
REVIEW & ACTIVITIES

Determine if the shape has rotational symmetry and circle YES or NO. Then draw lines of symmetry on the shapes below. Be sure to check for oblique (diagonal) lines of symmetry.

YES / NO

YES / NO

YES / NO



YES / NO

YES / NO

YES / NO

YES / NO

YES / NO

YES / NO

Draw hands on the clocks to show the times indicated.

5 past 7

10 to 9

20 after 2

Canadian maple syrup is classified into four main types based on its color and taste. Round to the nearest dollar and then complete the problems.

Golden	Amber	Dark	Very Dark
$16.95	$19.29	$13.75	$12.49

Approximately how much more is the bottle of amber syrup than the dark syrup?

Approximately how much would it cost to buy 2 bottles of the very dark syrup and one bottle of the golden syrup?

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

5 × 8	4 × 7	3 × 9	5 × 4	8 × 5
8 × 7	7 × 3	9 × 4	4 × 4	9 × 5

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Lesson 48

NUMBERS IN THE MILLIONS AND EXPANDED FORM

Temperature

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

Calendar

Have the child fill in the calendar chart on the back of the array mat. Then ask: How many days are in September and October? Which month comes after December?

Read to the child: You have already learned place value up to the hundred thousands place. Today, we are going to learn place value in the hundred millions. Mia's favorite place to visit is the local library. Today, she is reading facts about Canada's population. Look at the number that shows how many people live on Prince Edward Island as I read it and notice how I say THOUSAND when I reach the comma. Read this number slowly: "one hundred fifty-nine THOUSAND, seven hundred thirteen."

159,713
Prince Edward Island

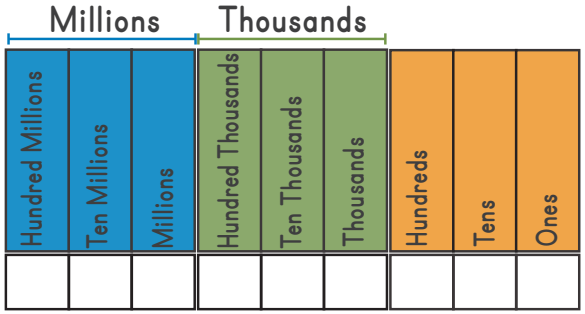
Now, you read the numbers in orange that show the populations of other Canadian provinces, saying THOUSAND when you get to the comma.

520,998
Newfoundland and Labrador

781,315
New Brunswick

979,115
Nova Scotia

What comes after 999? 9,999? 99,999? What do you think comes after 999,999? The next place value after hundred thousands is called millions. Look at the place value chart at the top of the page. Notice how there is a millions, ten millions, and hundred millions place value. From right to left, read the name of each place value.



1,379,584
Manitoba

Write the number for the population of the province of Manitoba in the place value chart, including the commas. Then look at the number as I read it aloud. Notice how I say MILLION after the millions place and THOUSAND after the thousands place. This is because we say the place value group name before moving to the next group. Read this number slowly: "one MILLION, three hundred seventy-nine THOUSAND, five hundred eighty-four."

Now it's your turn. Read aloud these numbers that show the populations of more Canadian provinces. Say million for the first comma and thousand for the second comma.

4,428,112
Alberta

5,145,851
British Columbia

8,575,779
Quebec

Write the number for Alberta's population in expanded form below. How many zeros will you need to write four million?

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We have two provinces left. Read the numbers aloud for the populations and then answer the questions.

1,177,884
Saskatchewan

- Which digit is in the millions place?
- Which digit is in the hundred thousands place?
- Which digit is in the tens place?
- Which digit is in the thousands place?

14,733,119
Ontario

- Which digit is in the millions place?
- Which digit is in the hundreds place?
- Which digit is in the ten millions place?
- Which digit is in the thousands place?

LESSON PRACTICE

Canada has over 40 beautiful national parks. Complete each section of this page. Numbers are based on statistics and are not exact. Use the word bank for spelling if needed.

Write the number 15,904,234 using words. (Write small!)

Total number of visitors to all national parks in Canada in 2019

15,904,234

Write the digit for each place value in the number to the left.

Ten Millions ☐ Millions ☐

Hundred Thousands ☐ Tens ☐

Word Bank

million | hundred | thousand
thirty | fifty | ninety

Jasper National Park
2,456,891 visitors a year

Write the number of Jasper National Park visitors in words.

List the digit that is in each given place value.

Millions ☐ Ten Thousands ☐ Hundred Thousands ☐

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REVIEW & ACTIVITIES

For each problem calculate the cost of the three stamps. (The cost of each stamp is written on the stamp.) Then subtract the amount from the money paid to figure out the amount of change due to the customer. Use the whiteboard to figure out the problems and write the answers in the green boxes.

Stamps Purchased

Money Paid = 80¢

Change Due

Stamps Purchased

Money Paid = 95¢

Change Due

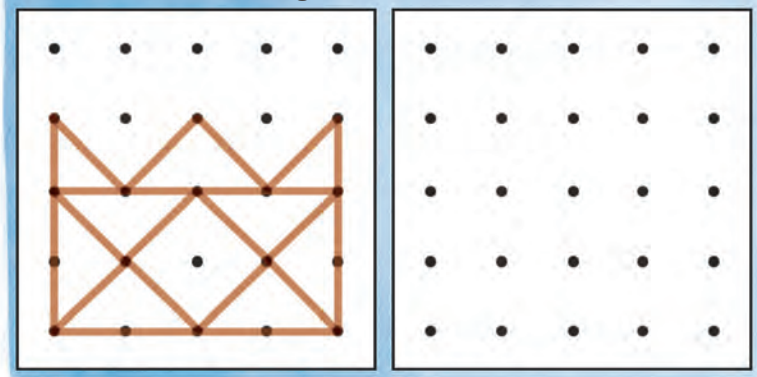
Stamps Purchased

Money Paid = 75¢

Change Due

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 7	3 × 9	7 × 8	5 × 8
7 × 3	9 × 4	4 × 4	4 × 5

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Write equivalent fractions to find the answer to the question.

Fill in the blanks to make each fraction equal to $\frac{1}{2}$.

$\frac{\square}{6}$	$\frac{4}{\square}$	$\frac{5}{\square}$	$\frac{\square}{4}$
A	G	I	R

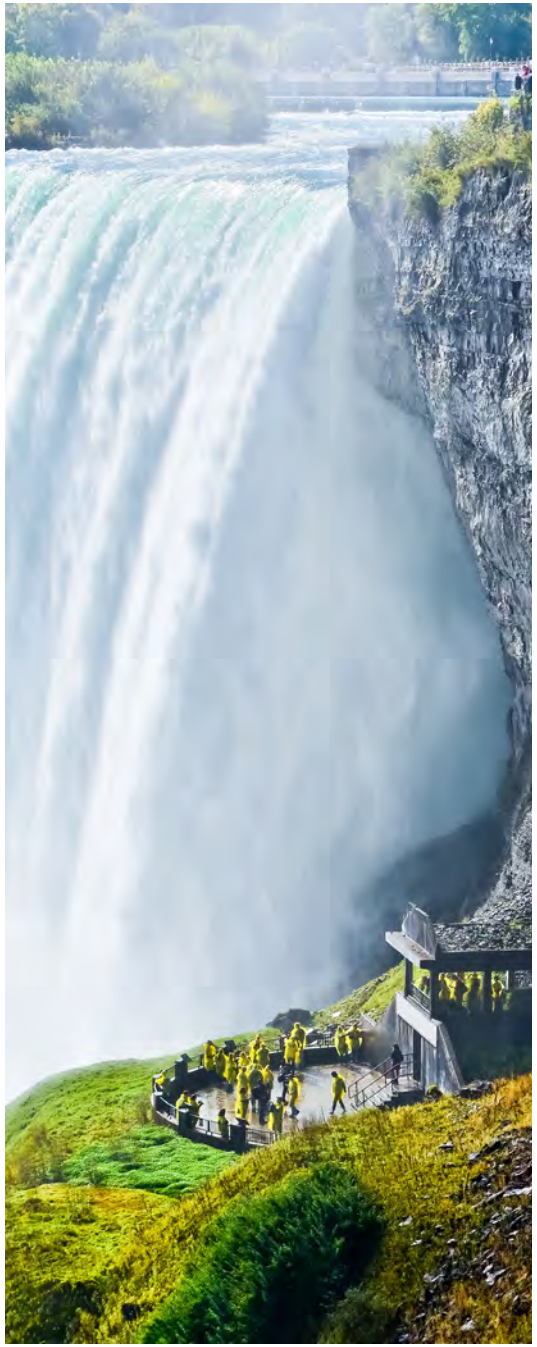
Fill in the denominator for each fraction to make it equal to 1.

$\frac{4}{\square}$	$\frac{7}{\square}$	$\frac{9}{\square}$	$\frac{5}{\square}$
F	N	L	S

What waterfall do Canada and the United States share?

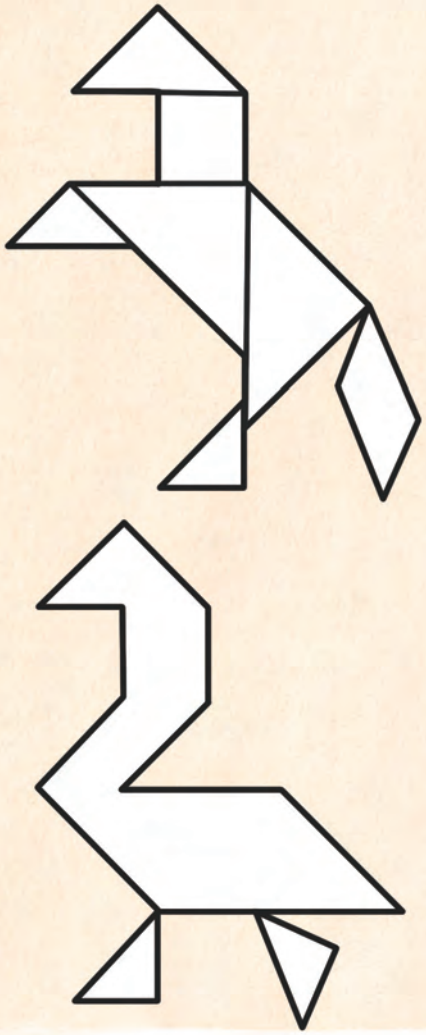
$\frac{7}{7}$	$\frac{5}{10}$	$\frac{3}{6}$	$\frac{4}{8}$	$\frac{3}{6}$	$\frac{2}{4}$	$\frac{3}{6}$

$\frac{4}{4}$	$\frac{3}{6}$	$\frac{9}{9}$	$\frac{9}{9}$	$\frac{5}{5}$



Tangram Logic

Use all the orange tangram pieces to create these images.



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Lesson 49

ADDING AND SUBTRACTING YARDS AND FEET

Calendar

Take the calendar chart from the math box.

- Write the number of days in each month in a regular year.
- Which month is the 9th? Which is the 5th? Which month comes after December?

Read to the child: Mia enjoys watching her dad play ice hockey. It is one of his favorite hobbies. She cheered as her dad hit the puck to his teammate for a total distance of 2 yards and 2 feet. Let's calculate that distance in feet.

2 yards 2 feet

To find the total feet, the first step is to convert 2 yards to feet by adding two groups of 3 feet (because 1 yard is the same as 3 feet). The second step is to add all the feet together.

3 feet in 1 yard
+ 3 feet in 1 yard
□ feet in 2 yards

□ feet in 2 yards
+ 2 feet
□ total feet

The teammate hit the puck 3 yards, and then Dad hit it 4 yards and 2 feet into the goal. Let's find the total distance the puck traveled by adding the distance that Mia's dad hit the puck to the distance that the teammate hit the puck.

Find the total distance by adding the feet column first and then the yards column. The number of feet is less than 3, so we do not need to regroup.

4 yd 2 ft Dad's distance
+ 3 yd 0 ft Teammate's distance
□ yd □ ft

When adding distances, there may be times where you will need to regroup by carrying over to the next column. Point to the feet column in the problem to the right. For example, the feet column in the problem here adds to 3 feet. We know 3 feet is equal to 1 yard, so we can convert those feet to yards. Now, add the 1 yard to the 3 yards to find the total.

2 yd 1 ft
+ 1 yd 2 ft
□ yd □ ft

3 yd + 1 yd = □ yd

Let's look at a subtraction problem with yards and feet. First, let's do a problem without any regrouping. Start with the smaller unit and subtract the feet first and then the yards.

5 yd 2 ft
- 3 yd 1 ft
□ yd □ ft

Here's another problem. Notice we cannot take 2 feet away from 0 feet, so we must borrow from the yard column. One yard is the same as 3 feet, so we can replace the 0 feet with 3 feet. Subtract the feet column first and then the yards column. Fill in the blanks by following these steps.

1 yd converted to 3 feet

2 3 yd 0 ft → 2 yd 3 ft
- 2 yd 2 ft - 2 yd 2 ft
Not enough feet to take 2 away □ ft

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LESSON PRACTICE

Ice-Skating Exercises

Complete each problem. If the number of feet in the answer is 3 or greater, regroup it.

1. What is the combined distance of skater A and skater C?

$$\begin{array}{r} 6 \text{ yd } 2 \text{ ft} \\ +\ 5 \text{ yd } 1 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

_ yd + _ yd = ☐ yd

2. How much farther did skater A travel than skater B?

$$\begin{array}{r} 6 \text{ yd } 2 \text{ ft} \\ -\ 4 \text{ yd } 1 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

Convert each distance to feet. Multiply the number of yards by 3, and then add that answer to the number of feet to find the total. Write the answer in the box.

Skater A

6 yards 2 feet ☐ ft

Skater B

4 yards 1 foot ☐ ft

Skater C

5 yards 1 foot ☐ ft

Score the Goal! Crumple up a small piece of scratch paper to make a paper puck. Complete each problem and circle the right answer. After each problem set your course book on a flat surface about 2 feet in front of you. Then place the paper puck on the edge of the surface right in front of you. Blow the paper puck toward the net on this page. If your paper puck reaches the book, you get a point.

$$\begin{array}{r} 7 \text{ yd } 1 \text{ ft} \\ -\ 2 \text{ yd } 2 \text{ ft} \\ \hline \text{yd} \quad \text{ft} \end{array}$$

5 yd 1 ft

4 yd 2 ft

$$\begin{array}{r} 4 \text{ yd } 2 \text{ ft} \\ +\ 3 \text{ yd } 0 \text{ ft} \\ \hline \text{yd} \quad \text{ft} \end{array}$$

7 yd 2 ft

6 yd 2 ft

$$\begin{array}{r} 10 \text{ yd } 2 \text{ ft} \\ -\ 8 \text{ yd } 1 \text{ ft} \\ \hline \text{yd} \quad \text{ft} \end{array}$$

2 yd 1 ft

2 yd 3 ft

$$\begin{array}{r} 5 \text{ yd } 1 \text{ ft} \\ +\ 1 \text{ yd } 2 \text{ ft} \\ \hline \text{yd} \quad \text{ft} \end{array}$$

_ yd + _ yd = ☐ yd

7 yd

6 yd

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REVIEW & ACTIVITIES

There are around 1,649,976 ice hockey players in the world. Complete the exercises based on this number.

Write the number on the chart.
Remember the commas.

Word Bank
million | hundred | thousand
seventy | forty

Millions			Thousands					
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

1,649,976
ice hockey players

List the digit that is in each given place value.

Millions ☐

Thousands ☐

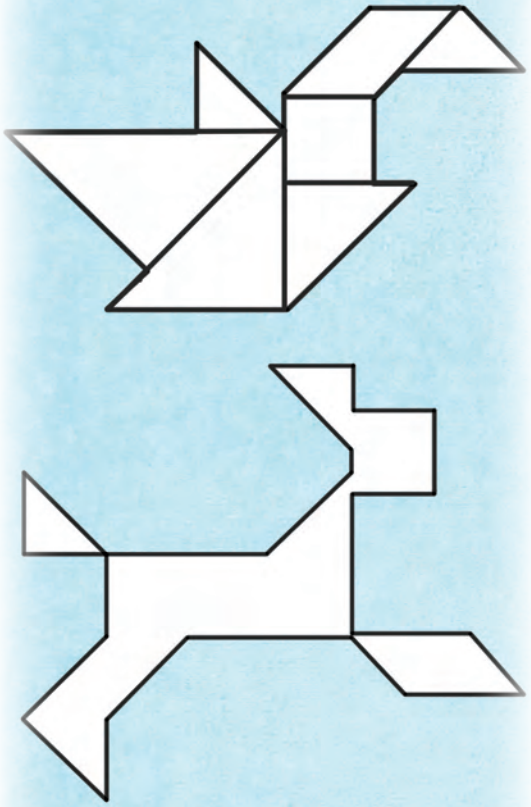
Ten Thousands ☐

Ones ☐

Write the number in words. (Write small.)

Tangram Logic

Use all the orange tangram pieces to create these images.



Write the time Mia's dad finished hockey practice each day. Include AM or PM in the box.

He started at 5 minutes after noon and practiced for 44 minutes.

He started at 11:15 AM and practiced for 26 minutes.

He started at 3:17 PM and played for 38 minutes.

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section. ☐

4 × 7	3 × 9	7 × 8	5 × 8	7 × 4
7 × 3	9 × 4	4 × 4	4 × 5	9 × 3

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Lesson 50

SUBTRACTION ACROSS ZEROS

Place Value

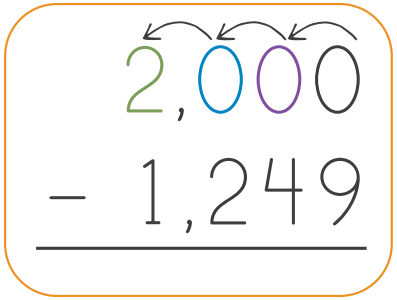
- How many hundreds, tens, and ones are in 180?
- What is the value of the digit 2 in the number 3,297?
- Which digit is in the ten millions place? 172,395,463

Skip Counting

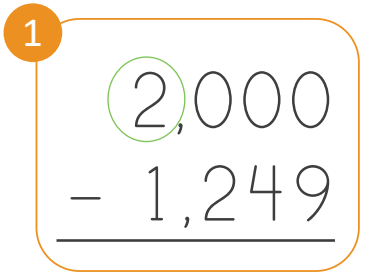
- Skip count by 6s from 6 to 66.
- Skip count by 60s from 60 to 660.

○ Read to the child: Mia arrived at the library one sunny day and was excited to see that the summer reading program was starting. When the librarian asked Mia how many minutes of reading she could do over the summer, Mia chose 2,000 minutes. She read every day for the first 6 weeks. Then she added up all her minutes and subtracted them from 2,000 to find out how many more minutes she needed to reach her goal.

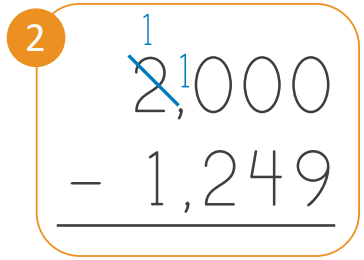
○ Read to the child: Mia wrote down this problem to subtract her minutes read from the total minutes needed. She couldn't subtract 9 from 0, so she needed to borrow. Point to the tens place (purple). But she couldn't borrow from the tens place. Point to the hundreds place (blue). She looked to the hundreds place but couldn't borrow from there either. Point to the thousands place (green). Finally, she got to the thousands place, and now she can borrow from the 2.



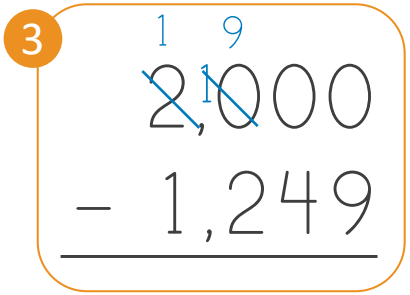
1 Before she subtracts, she is going to regroup and borrow. Regrouping is renaming or changing a group of ten. Point to the circled 2. The circled 2 is in the thousands place and represents 2 thousands. A thousand is made up of 10 hundreds.



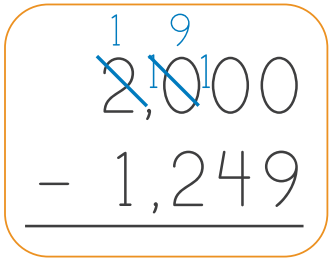
2 Point to the 2 that is crossed out in the thousands place. If Mia regroups 1 of the thousands into hundreds, she will have 1 thousand and 10 hundreds, which is still equal to 2 thousands. To show the regrouping, she crosses out the number in the thousands place and writes one number less above it. Now, point to the 1 written by the 0 in the hundreds place. To show the 10 hundreds, she writes the number 1 next to the zero in the hundreds place. Now she has the number 10 in the hundreds place, representing 10 hundreds. Ten hundreds is the same as how many thousands? [1 thousand] She has borrowed 10 hundreds from the thousands column.



3 Now she can regroup and borrow from the 10 that is in the hundreds place! Mia thinks borrowing is fun. She crosses out the 10 in the hundreds place and writes a 9 because she is borrowing 1 hundred and regrouping it into 10 tens.



She writes the number 1 next to the 0 in the tens place to show the 10 tens that she borrowed from the hundreds place. Now we have the number 10 in the tens place, representing 10 tens, which is the same as 1 hundred. We still have a total of 2,000, but now we are showing it as 1 thousand, 9 hundreds, and 10 tens.



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4 Now Mia can regroup and borrow from the tens column. She changes 1 of the tens to 10 ones. She crosses out the 10 in the tens column and writes 9. She writes the number 1 next to the zero in the ones place to show the 10 ones she borrowed from the tens place. Now she can subtract 9 from 10 in the ones column and then move on to subtract the numbers in the tens, hundreds, and thousands columns. Have the child complete the subtraction. Mia has read for 1,249 minutes, and she needs to read for 751 more minutes to reach her goal.

4

$$\begin{array}{r} \overset{1}{\cancel{2}},\overset{9}{\cancel{0}}\overset{9}{\cancel{0}}\overset{1}{0} \\ -\ 1,249 \\ \hline \end{array}$$

○ Have the child follow the steps to regroup, borrow, and subtract while you repeat the steps in the lesson.

$$\begin{array}{r} 6,005 \\ -\ 4,382 \\ \hline \end{array} \qquad \begin{array}{r} 500,000 \\ -\ 428,176 \\ \hline \end{array}$$

Optional Video Lesson

For additional practice watch the optional video lesson on goodandbeautiful.com/math3 titled "Subtracting Across Zeros." The section below is used during the video.

$$\begin{array}{r} 2,605 \\ -\ 1,349 \\ \hline \end{array} \qquad \begin{array}{r} 4,008 \\ -\ 1,647 \\ \hline \end{array}$$

$$\begin{array}{r} 700,000 \\ -\ 372,895 \\ \hline \end{array}$$

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LESSON PRACTICE

Mia's mother grew up in Quebec City. From her birth until now, she has lived in five different houses in the city. Complete the subtraction problems to figure out how many years she lived in each house. The answer that is odd is the house Mia lives in now. Circle it.

$$\begin{array}{r} 502 \\ -\ 494 \\ \hline \end{array}$$

$$\begin{array}{r} 2{,}700 \\ -\ 2{,}696 \\ \hline \end{array}$$

$$\begin{array}{r} 600 \\ -\ 588 \\ \hline \end{array}$$

$$\begin{array}{r} 8{,}000 \\ -\ 7{,}998 \\ \hline \end{array}$$

$$\begin{array}{r} 32{,}004 \\ -\ 31{,}997 \\ \hline \end{array}$$

REVIEW & ACTIVITIES

Change!

Complete the problems.

$$\begin{array}{r} \$24.75 \quad \text{amount paid} \\ -\ \$19.64 \quad \text{cost of item} \\ \hline \square \quad \text{change} \end{array}$$

Mom bought a large wreath to hang on the front door. It cost $27.46. Mom received $2.54 in change. How much did she pay the cashier?

$$\begin{array}{r} \square \quad \text{cost of item} \\ +\ \square \quad \text{change} \\ \hline \square \quad \text{amount paid} \end{array}$$

Shade the next two shapes to show equivalent fractions. Then write the fraction of the shape that is shaded under each shape.

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Mia's Kitchen

Complete each problem.

$$\begin{array}{r} 7 \text{ yd } 1 \text{ ft} \\ +\ 5 \text{ yd } 1 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

$$\begin{array}{r} 2 \text{ yd } 1 \text{ ft} \\ +\ 1 \text{ yd } 2 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

$$\begin{array}{r} 5 \text{ yd } 2 \text{ ft} \\ -\ 2 \text{ yd } 1 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

$$\begin{array}{r} 6 \text{ yd } 2 \text{ ft} \\ -\ 2 \text{ yd } 2 \text{ ft} \\ \hline \square \text{ yd } \square \text{ ft} \end{array}$$

Convert each measurement to inches. Remember there are 12 inches in 1 foot.

Fridge	Oven	Counter
3 feet 3 inches	3 feet 5 inches	4 feet 2 inches

Word Bank: million | hundred | thousand | fifty | sixty | ninety | twenty

Write the number in words: 56,763,398.

Write the number in words: 705,809,462.

Write the = (equal) or ≠ (not equal) sign between the fractions. (Hint: Equivalent fractions are different fractions that represent the same amount. Equivalent fractions can be made by multiplying the numerator and the denominator by the same number.)

$\frac{2}{3} \bigcirc \frac{4}{6}$ $\frac{1}{2} \bigcirc \frac{2}{3}$ $\frac{1}{4} \bigcirc \frac{2}{8}$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

5 × 8 =	3 × 9 =	9 × 4 =
7 × 4 =	4 × 5 =	2 × 8 =

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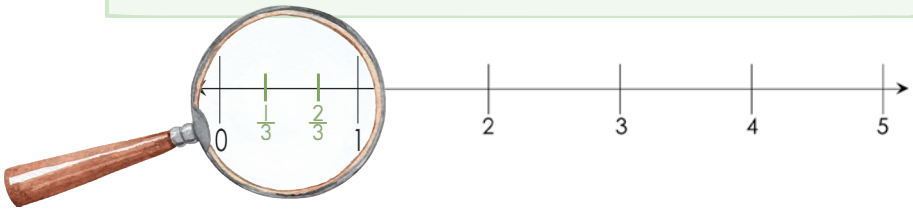
Lesson 51

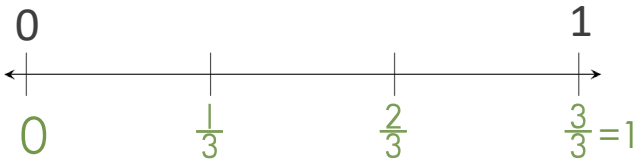
FRACTIONS ON A NUMBER LINE

Calendar

- Write the number of days in each month for a leap year on the calendar chart. Then answer the questions.
- Which month comes before April? After June? How many days are in February in a leap year?

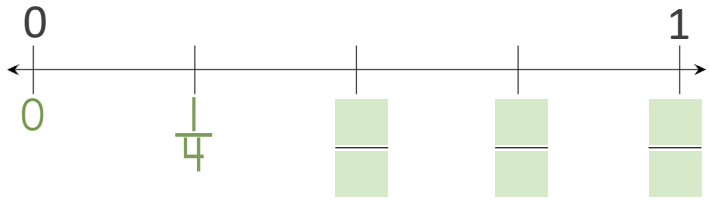


○ Read to the child: You may have seen number lines with whole numbers. For example, 0, 1, 2, 3, 4, and 5. Let's zoom in between 0 and 1 so you can see how fractions are shown on a number line. This number line has been divided into thirds, so each tick mark between 0 and 1 is labeled with a 3 in the denominator.

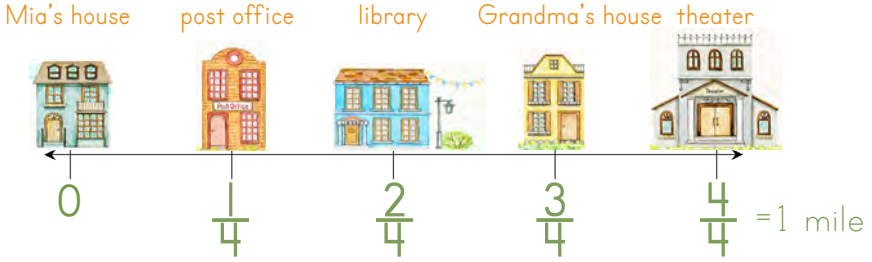


The first tick mark past the zero represents one out of three segments, so we label it $\frac{1}{3}$. The second tick mark represents two segments out of three, so we label it $\frac{2}{3}$. The last tick mark represents three out of three segments so we label it $\frac{3}{3}$, or 1, since it is equal to 1 whole. Remember, when the numerator and denominator of a fraction are the same, the fraction is equal to 1 whole.

Practice filling in the missing fractions on the number line shown on the next column. This number line has been divided into fourths, so each tick mark is labeled with a 4 in the denominator.

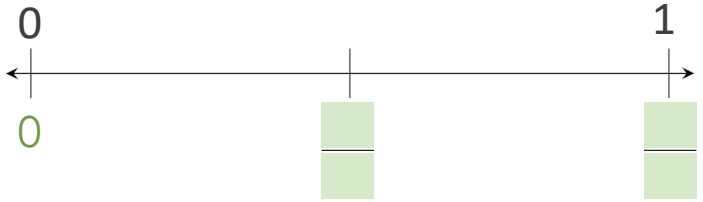


We can compare fractions using number lines. The number line below shows several buildings in relation to Mia's house, measured in miles. On Monday she walked $\frac{1}{4}$ of a mile to drop off a letter at the post office. On Tuesday she walked $\frac{3}{4}$ of a mile to visit Grandma.



A fraction is larger if it's farther from 0 than another fraction. Use the correct symbol (< or >) to compare these fractions. The distance to Grandma's house, $\frac{3}{4}$ of a mile, is greater than the distance to the post office, $\frac{1}{4}$ of a mile.

Let's look at a number line that is divided into a different number of segments. Count the segments and use that number as your denominator to fill in the missing fractions.



Earlier we compared fractions using the same number line. Now we will use two different number lines to help us compare fractions. Lay your pencil down over the $\frac{1}{2}$ vertically until it is lined up with the $\frac{2}{4}$ of the previous number line. Notice that $\frac{1}{2}$ and $\frac{2}{4}$ are on the same exact place on the number lines, which means they are equivalent. The distance to the library, $\frac{2}{4}$ of a mile, is the same distance as $\frac{1}{2}$ of a mile.

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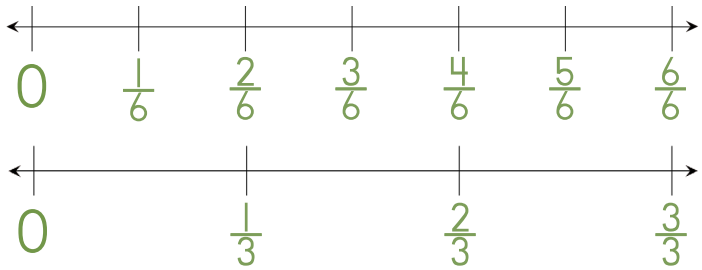
Let's continue to use more than one number line to compare fractions. Remember that the farther a fraction is from 0 the larger it is. We will use two number lines: one with sixths and one with thirds.



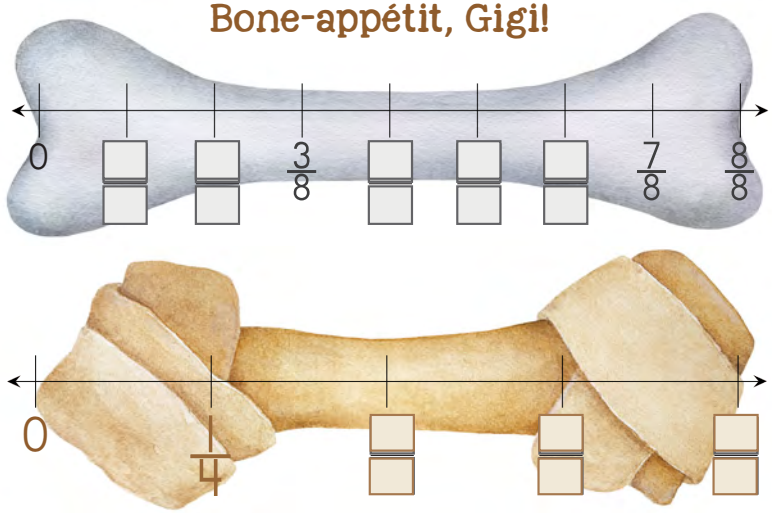
Which is greater, $\frac{3}{6}$ or $\frac{1}{3}$? Three-sixths is greater because it is farther from 0 than $\frac{1}{3}$. Which is greater, $\frac{4}{6}$ or $\frac{2}{3}$? They are equivalent because they are located at the same place on their number lines. Continue practicing by comparing the fractions (<, >, =) below using the number lines.

$\frac{2}{3} \bigcirc \frac{6}{6}$ $\frac{2}{6} \bigcirc \frac{1}{3}$ $\frac{5}{6} \bigcirc \frac{3}{3}$ $\frac{1}{6} \bigcirc \frac{2}{3}$

LESSON PRACTICE

Fill in the missing fractions on the number lines below. Then use the number lines to answer the questions in the next column.

Bone-appétit, Gigi!



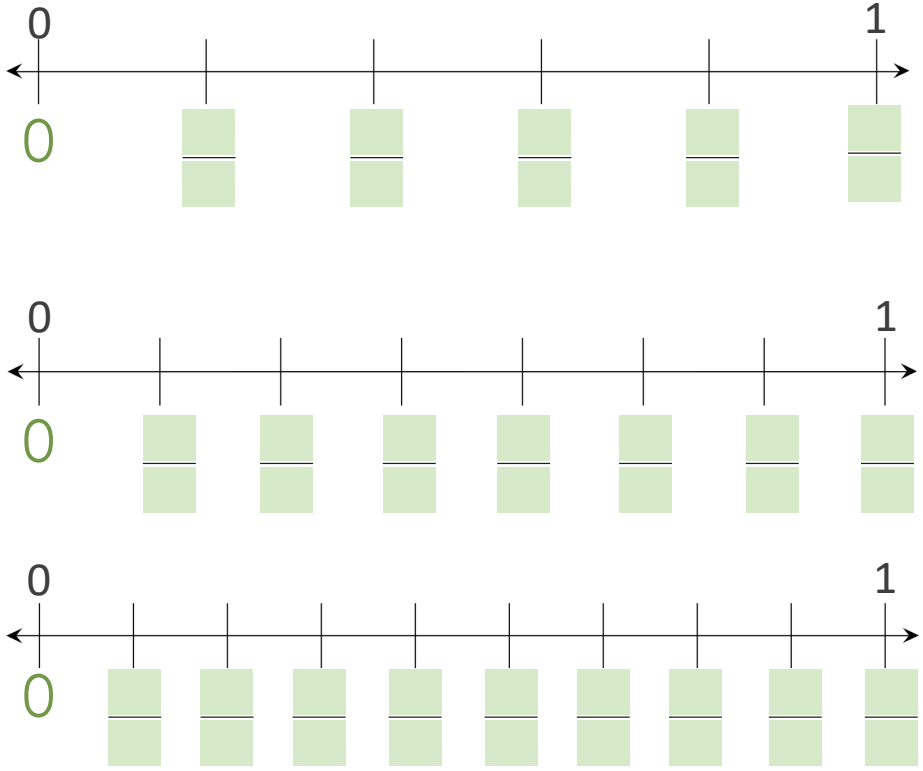
- Suppose Gigi ate $\frac{3}{8}$ of her gray bone and $\frac{1}{4}$ of her brown bone. Which bone did she eat more of?

- Suppose Gigi ate $\frac{5}{8}$ of her gray bone and $\frac{3}{4}$ of her brown bone. Which bone did she eat more of?

- Use the number lines on the bones to compare the following fractions with the <, >, or = signs.

$\frac{2}{4} \bigcirc \frac{4}{8}$ $\frac{1}{8} \bigcirc \frac{5}{8}$ $\frac{6}{8} \bigcirc \frac{1}{4}$ $\frac{3}{4} \bigcirc \frac{6}{8}$

Fill in the number lines below. First, count the total number of segments that the number line has been divided into and use that number as the denominator. Then write the numerators.



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REVIEW & ACTIVITIES

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

4 × 7	3 × 9	7 × 8	5 × 8	7 × 4
7 × 3	9 × 4	4 × 4	4 × 5	9 × 3

Riddles

Complete the problems and use the key to answer the riddles. If you need help to subtract across zeros, consider watching the video from the last lesson again.

KEY

S = 6
P = 5
M = 4
A = 1
R = 2
L = 0
O = 7
E = 3

What flower tells what Hank did in the morning?

6,000 − 3,237 = ____

What tree does everyone carry in his or her hand?

9,500 − 4,396 = ____

Ice Skating Exercises

Complete each problem.

1. What is the combined distance traveled by skater A and skater C?

5 yd 2 ft + 4 yd 0 ft = ____ yd ____ ft

2. How much farther did skater A travel than skater B?

5 yd 2 ft − 3 yd 1 ft = ____ yd ____ ft

Convert each distance to feet. Write the answer in the box.

Skater A

5 yards 2 feet = ____

Skater B

3 yards 1 foot = ____

Skater C

4 yards 0 feet = ____

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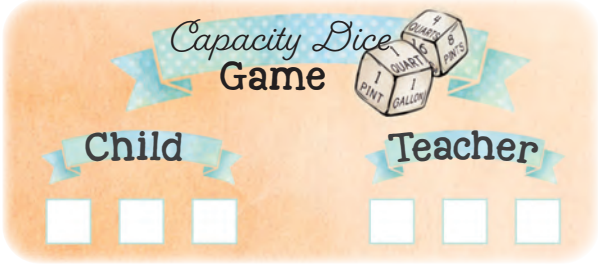
Lesson 52

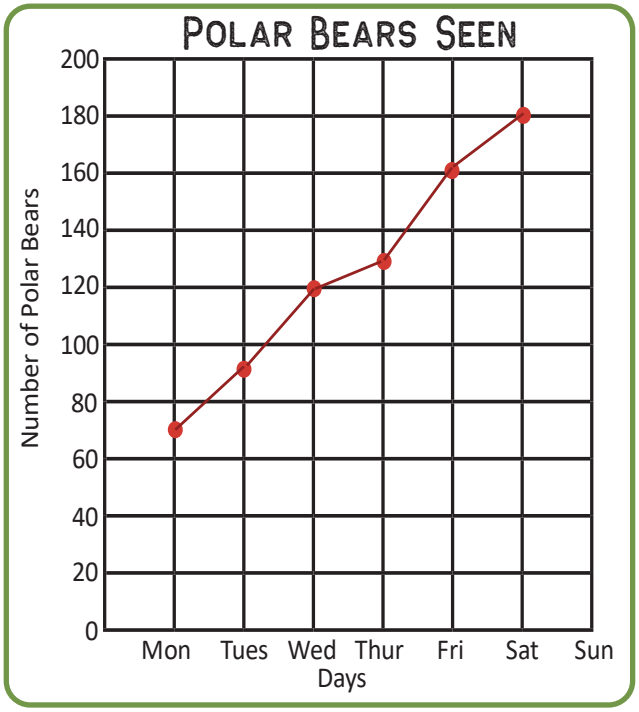
READING AND CREATING LINE GRAPHS

Capacity

Play the "Capacity Dice Game." (Instructions are on page ix.)



Read to the child: Far north in the province of Manitoba in Canada, the tiny town of Churchill is known as the polar bear capital of the world. Of the approximately 25,000 polar bears on the earth, as many as 15,500 of them live near this town. Each fall, tourists flock to the town to catch a glimpse of the majestic bears as they migrate to Hudson Bay. Let's suppose you want to create a graph representing the number of polar bears seen each day for a week. A line graph is a graph that uses points and line segments to show changes in data. When comparing changes in data over a period of time, a line graph is a great choice.



Line graphs help you see trends in data. Is the number of polar bear sightings increasing or decreasing each day? There were no tours scheduled on Sunday, so no data was collected. If you had to predict (or guess) how many bears would have been seen on Sunday, would you guess that there would be more or less than on Saturday? It's more likely that there would be more because we see the numbers have been going up each day. Let's suppose that 190 bears passed the town on Sunday. Make a dot on the graph above Sunday that is halfway between 180 and 200. Then draw a line from the dot for Saturday to the one you drew for Sunday.

Because the purpose of line graphs is to show trends, you may not be able to tell the exact amount a dot represents. Look at the dot for Monday. It is halfway between 60 and 80 on the graph. This dot represents a number around 70. We can use rounded numbers when answering questions about this line graph.

- About how many polar bears were seen on Tuesday?
- About how many polar bears were seen on Thursday?
- About how many more polar bears were seen on Saturday than on Friday? Use the boxes to the right to complete the problem.

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○ Read to the child: Now it's your turn to create a line graph using the array mat from the math box as the grid for your graph. You will use the data from the chart below that shows the average amount of snowfall in Quebec City, Canada, over several months.

STEP 1: Write a title for your graph in the space at the top of the array mat.

STEP 2: Select a scale. (With the data given, the best scale for this graph is multiples of 10.)

STEP 3: Label the vertical and horizontal sides of your graph. The vertical side will have the scale in centimeters (i.e., 0 cm, 10 cm, 20 cm, etc.), starting at the bottom and going up by 10s for each line. The months will be listed horizontally across the bottom, starting with September and ending at May.

September	0 cm
October	5 cm
November	35 cm
December	70 cm
January	75 cm
February	65 cm
March	45 cm
April	15 cm
May	0 cm

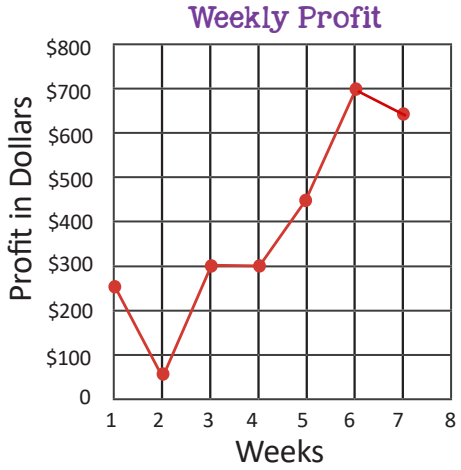
STEP 4: Draw points on the graph to represent the data. Then draw lines to connect the dots from left to right.

○ Have the child answer these questions. Use a whiteboard if needed.

- During which month did the most snow fall?
- How much more snow fell in December than in November?

LESSON PRACTICE

Read the graph and answer the questions about it.
This graph shows profit in dollars at a bookstore.



Which week had the lowest profit?

Which week had the highest profit?

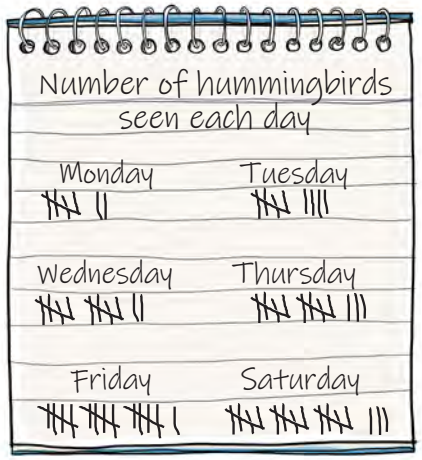
Which weeks had about the same amount of profit?

Mia was trying to attract hummingbirds to her yard. Each day she put out something new to attract them, and she kept track of how many hummingbirds came into her yard each day. Create a line graph based on data she collected by following the steps below. Then answer the questions.

1. Write a title.
2. Write the scale (0, 2, 4, 6, 8, etc.) in the blue box.
3. Draw the points and connect the dots with a line.

How many more hummingbirds did Mia see on Saturday than she did on Monday?

Do you think the birds liked the new things Mia put out for them?



Title: _____

Mon. Tues. Wed. Thur. Fri. Sat.

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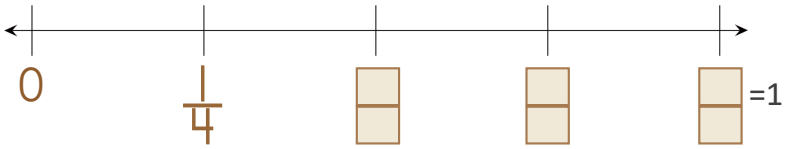
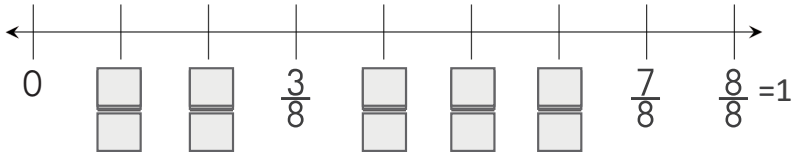
REVIEW & ACTIVITIES

Polar Bear Stamp

Fill in the missing fractions on the number lines below. Then use the number lines to answer the question and complete the activity.





To fold the postage stamp in half, would you fold it at the $\frac{3}{8}$ mark or the $\frac{4}{8}$ mark? Write the answer in the green box.

Use the number lines to compare the following fractions.

$\frac{6}{8} \bigcirc \frac{1}{4}$ $\frac{3}{4} \bigcirc \frac{6}{8}$ $\frac{2}{4} \bigcirc \frac{4}{8}$

Riddles

Complete the problems and use the key to solve the riddles.

KEY

E = 4
O = 5
C = 7
M = 3
H = 6
B = 2

No one can see me. I won't speak unless I'm spoken to.

I have teeth but can't eat.

$$\begin{array}{r} 9{,}000 \\ -\ 4{,}235 \\ \hline \square\,\square\square\square \\ \hline \_\_\_\_ \end{array}$$

$$\begin{array}{r} 8{,}800 \\ -\ 1{,}268 \\ \hline \square\,\square\square\square \\ \hline \_\_\_\_ \end{array}$$

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then solve the problems in this section.

5 × 8 =	3 × 9 =	9 × 4 =
7 × 4 =	4 × 5 =	2 × 8 =

The average male polar bear is about 9 feet long. Write a multiplication problem (but don't solve it) to figure out how many inches that is.

Figure out the skip counting patterns and write the missing numbers.

7, _____, 21, 28, _____, _____ ★ 120, _____, 80, 60, _____, _____

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Lesson 53

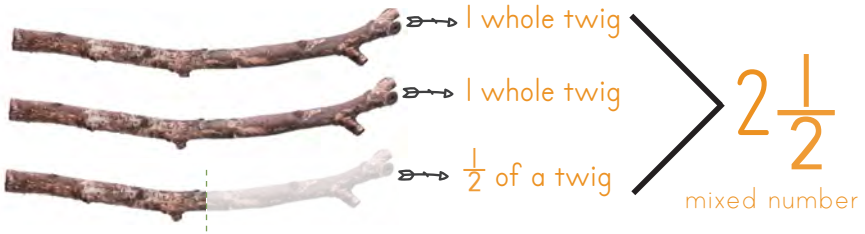
MIXED NUMBERS

Multiplication

Quiz the child on the following problems.

10 × 2 =	4 × 1 =	7 × 0 =	6 × 10 =
10 × 8 =	3 × 1 =	9 × 0 =	5 × 10 =
8 × 2 =	6 × 2 =	2 × 5 =	2 × 9 =

○ Read to the child: Beavers are the national animal of Canada. Some of their favorite foods include twigs, grass, leaves, and roots of water plants. Let's suppose that a beaver gathered the twigs shown below.

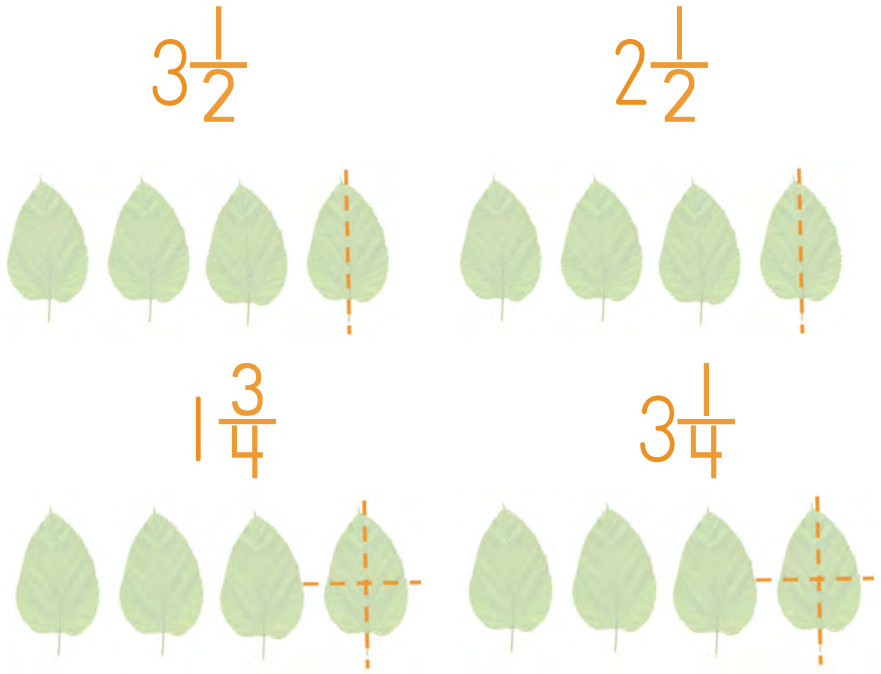


The beaver collected 2 whole twigs plus $\frac{1}{2}$ of a twig. When we put the whole number (2) next to the fraction ($\frac{1}{2}$), we get a mixed number: $2\frac{1}{2}$. A mixed number consists of a whole number and a fraction.

It's your turn! Label each set of twigs using a mixed number by counting the number of whole twigs and writing that number in the big box. Then write the fraction that represents the part of a twig to the right of the whole number.

Suppose we want to illustrate $1\frac{1}{2}$ leaves by shading the correct number of leaves. Begin by shading the number of whole numbers, in this case 1 whole leaf. Then shade 1 out of 2 equal parts of the last leaf.

Shade the correct number of leaves to match each mixed number. The whole number tells you how many whole leaves to shade. The fraction tells you how many parts to shade in the last leaf.



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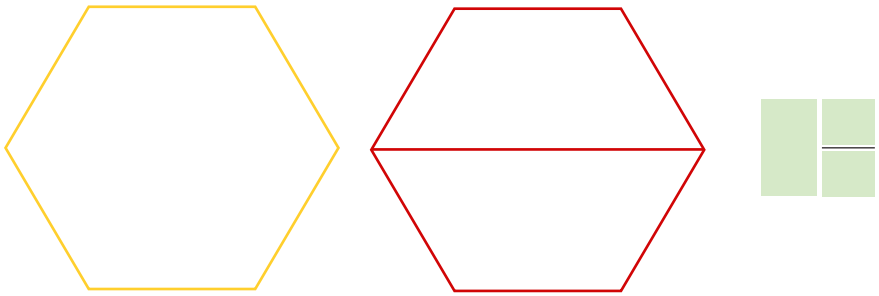
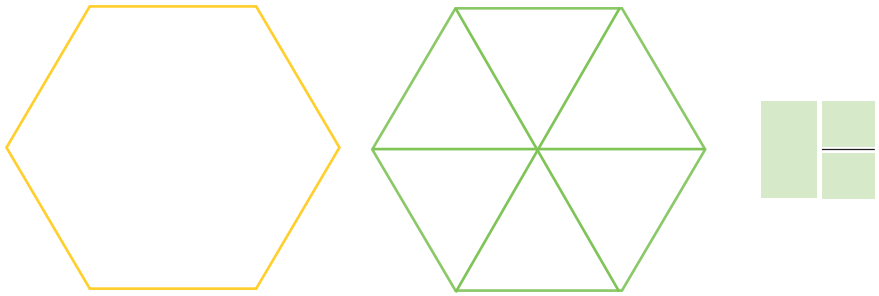
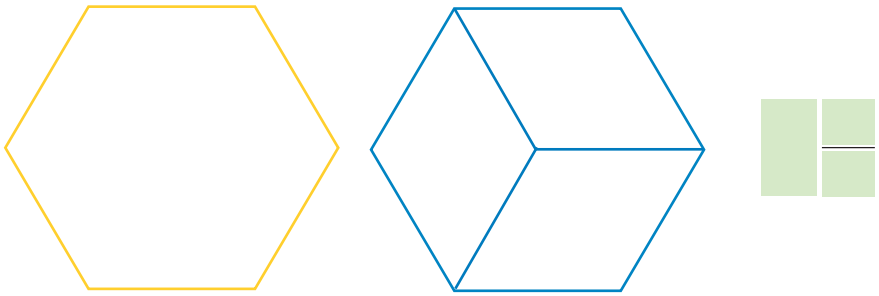
LESSON PRACTICE

Take 1 of each shape from the math box (1 yellow hexagon, 1 red trapezoid, 1 blue rhombus, and 1 green triangle). Place the shapes on the outlines to create a mixed number. You will have to move the hexagon down for each set. Then write a mixed number to describe each picture you created.







Circle the mixed numbers.

$\frac{8}{9}$ $7\frac{1}{2}$ $\frac{3}{4}$ $\frac{1}{3}$

$3\frac{1}{4}$ $\frac{4}{6}$ $10\frac{2}{5}$ $4\frac{7}{9}$

Busy Beavers!

A family of beavers used the logs below to build their dam. Write a mixed number to represent each group of logs. Count the number of whole logs and write that number in the big box. Then write the fraction that represents the part of a log to the right of the whole number.

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REVIEW & ACTIVITIES

There are around 6,076,345 beavers in Canada. Complete the exercises based on this number.

Write the number on the chart. Remember the commas.

Millions			Thousands					
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

6,076,345
beavers

Spelling Bank
million | hundred | thousand
seventy | forty

List the digit that is in each given place value.

Millions ☐

Hundreds ☐

Ten Thousands ☐

Tens ☐

Write the number in words. (Write small.)

Round each amount to the nearest dollar, and write it in the box.

$119.56 ☐

$79.49 ☐

Write the time Mia finished her reading practice each day. Include AM or PM in the box. Use a whiteboard if needed.

She started at 5 minutes after 3 in the afternoon and read for 23 minutes.

☐

She started at quarter after 9 in the morning and read for 33 minutes.

☐

She started at ten past 7 in the evening and read for 41 minutes.

☐

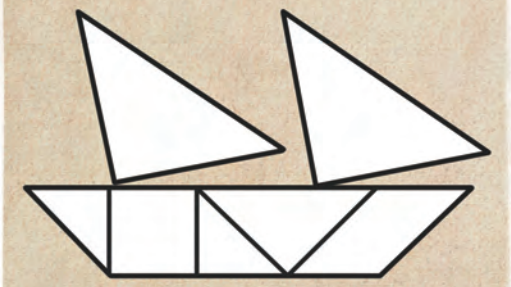
Multiplication Fact Practice

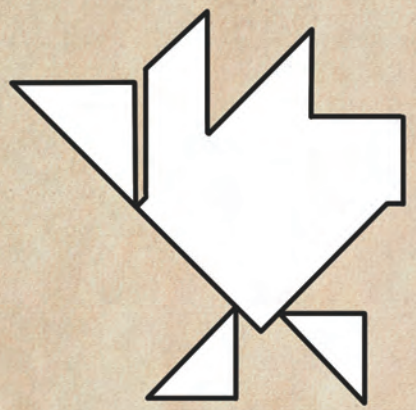
Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section. ☐

4 × 7	3 × 9	7 × 8	5 × 8	7 × 4
7 × 3	9 × 4	4 × 4	4 × 5	9 × 3

Tangram Logic

Use all the orange tangram pieces to create these images.





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Lesson 54

NUMBER PATTERNS: PART 1

Maple Leaf Mental Math

Find the missing numbers.

12 + = 18 = _____ + = _____

+ 8 = 15 = _____ + = _____

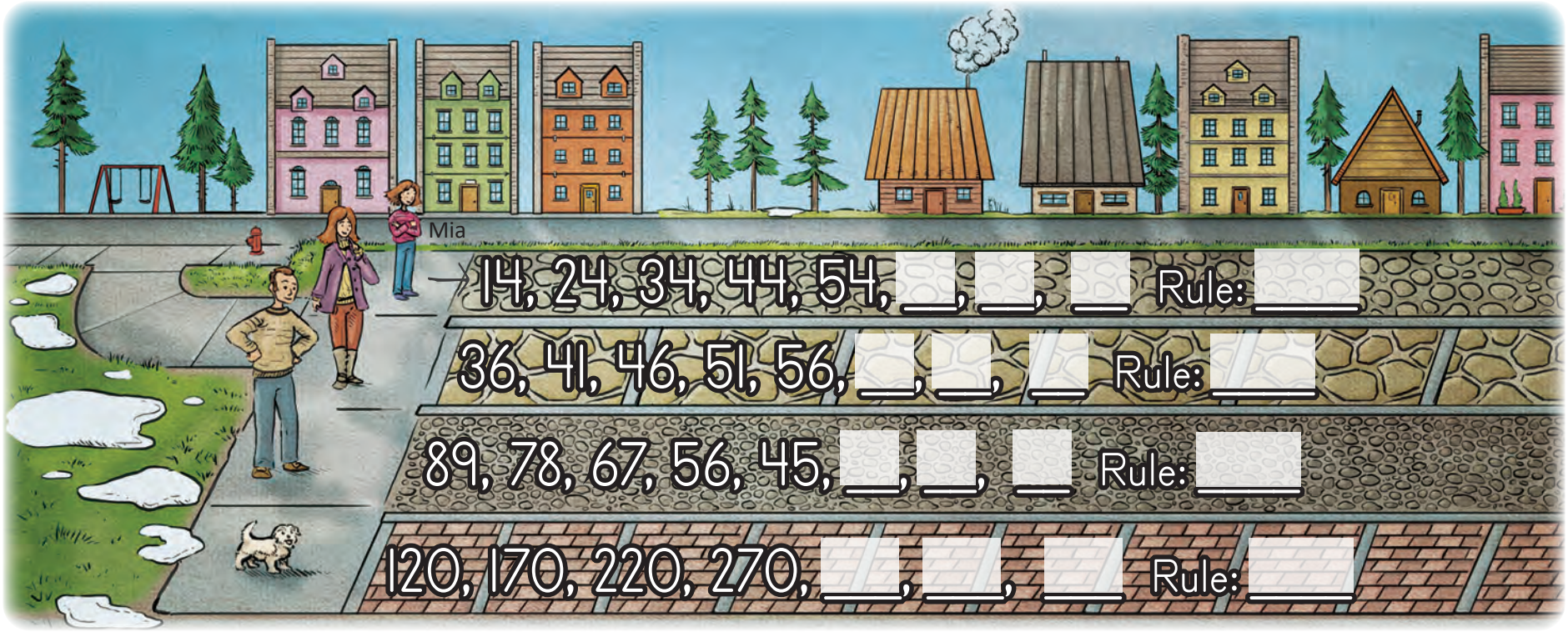
Skip Counting

- Skip count by 8s from 8 to 88.
- Skip count by 25s from 300 to 600.

Read to the child: God created a beautiful world full of wonderful patterns and symmetry. This spiral seashell shows a growing pattern as the size of the spiral continues growing from the inside out.

We can find patterns in numbers too. Look at the number pattern below next to Mia. To find the pattern, find the difference between the first two numbers. The difference between 14 and 24 is 10. Then find the difference between the second and third numbers to see if it is the same amount. Yes, the difference between 24 and 34 is also 10. That means the rule for this pattern is plus 10. Write "+ 10" on the line for the rule. Now that you know the pattern, you can find the missing numbers. The next one is 54 plus 10. Then add 10 again to find the next number. Fill in the blanks for the first pattern.

Look at the other number patterns, starting with the first and second numbers to find the rule. Check to see if it is true for the second and third numbers. Write the rule and missing numbers in the blanks.



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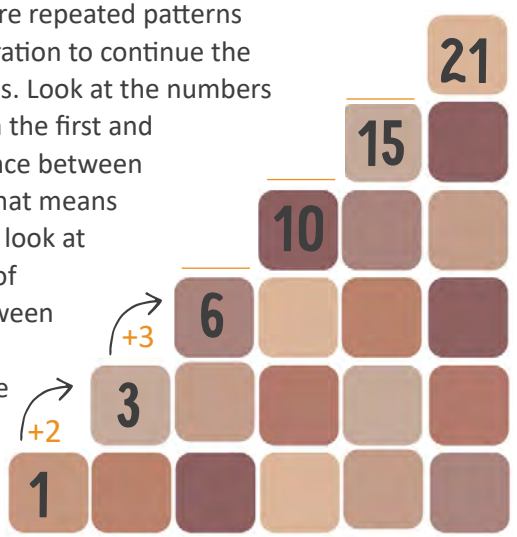
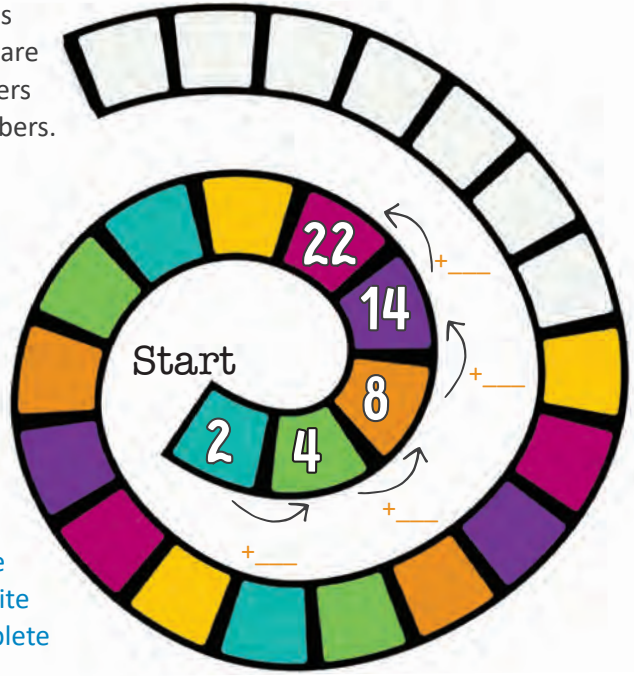
All the patterns you just completed are repeated patterns because you repeated the same operation to continue the pattern. Let's look at growing patterns. Look at the numbers on the steps. The difference between the first and second numbers is 2. But the difference between the second and third numbers is 3. That means that our rule cannot be plus 2. So we look at the difference between the next set of numbers. What is the difference between 10 and 6? Write the answer in the space between the numbers. Now we can see a growing pattern of +2, +3, +4. How much will you have to add to get to 15 and then to 21? Write the amounts in the blanks. Using this pattern, you can find the next 4 numbers in the pattern. Write them on the bricks to the right.



Let's try one more growing pattern. Find the differences between the numbers that are shown, and write the answers in the blanks between numbers. What pattern do you see? The number we add to the pattern increases by 2 each time. Use this pattern to find the next 3 numbers and write them on the spiral.



Optional extensions: On a whiteboard have the child create a repeated pattern using plus 6 as the rule. The child may also color the white spaces in the spiral to complete the color pattern.

LESSON PRACTICE

Look at the number patterns below. Complete the patterns and answer the questions.

23, 33, 43, 53, 63, ...

What rule does this pattern follow? _____

Write the next three numbers in the pattern. _____, _____, _____

If the pattern continues, what will the 9th number in the pattern be?

870, 760, 650, 540, ...

What rule does this pattern follow? _____

Write the next three numbers in the pattern. _____, _____, _____

1, 4, 10, 19, ...

How much was added between the first and second number? _____
How much was added between the second and third number? _____

Write the next two numbers in the pattern. _____, _____

Find the rule and fill in the rest of the chart.

# of Legs Rule:_____

How many legs would there be if you had 9 dogs?

# of dogs	# of legs
2	8
3	12
4	
	20
6	

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REVIEW & ACTIVITIES

Use each of the following shapes from the math box. Rotate each shape to see if they have rotational symmetry and circle the answer below. Then draw lines of symmetry on the shapes below.

YES / NO

YES / NO

YES / NO

YES / NO

YES / NO

Use the chart to the right to create and complete a two-step or one-step problem that answers each question.

Language	# of countries where it is an official language
French	29
Spanish	20
German	6

How many more countries have French as an official language than Spanish and German together?

How many more countries have French as an official language than Spanish?

First, complete the addition and subtraction problems, and then round the answer to the nearest dollar to find the answer to the riddle.

What do you need to catch before you can sing?

$34.79 + $27.47 = E	$73.00 - $58.29 = A	$8.90 - $7.34 = R	$4.87 + $3.25 = H	$35.74 + $64.14 = B	$80.00 - $53.92 = T
$100	$2	$62	$15	$26	$8

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

5 × 8	4 × 7	3 × 9	5 × 4	8 × 5
8 × 7	7 × 3	9 × 4	4 × 4	9 × 5

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Lesson 55

OUNCES, POUNDS, AND TONS: PART 1

Calendar

Review the following items.

- Which day comes before Monday? After Friday?
- What day is it today? What day will it be 2 days after today? What day was it yesterday?

○ Read to the child: Mia enjoys accompanying her mom to the grocery store. She helps by weighing the fruits and vegetables on the scale. Heavier items, like the melon below, are weighed using pounds, while lighter, smaller items like cherries can be weighed using ounces. Circle the more reasonable unit of measurement for each of the other fruits.

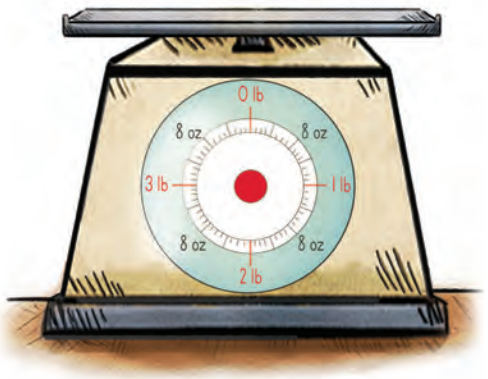
1 pound

1 ounce

ounces
pounds

ounces
pounds

Pounds and ounces are the most common US customary units for measuring how heavy something is. Scales are used to weigh an object. Look at the scale here. Notice there are two different abbreviations shown on the scale. The word "ounces" is abbreviated with "oz" and the word "pounds" uses "lb," from the Latin word *libra*, for its abbreviation. Find the number of ounces in a pound by counting the number of tick marks on the scale from 0 lb to 1 lb and fill in the blank to show the equivalence.



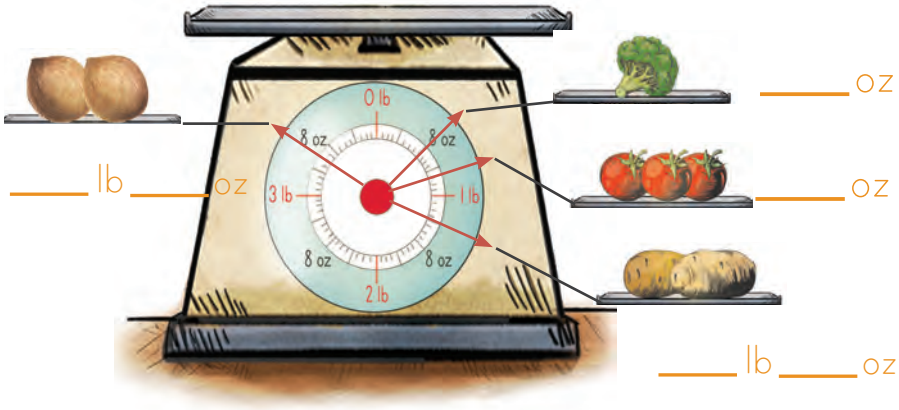
☐ ounces = 1 pound

_____ oz

_____ lb _____ oz

Each black tick mark represents 1 ounce, and each red tick mark represents 1 pound. Look at the first scale here. The dial is pointing to the 9th tick mark, which means that the broccoli weighs 9 ounces. Write a 9 in the space provided. The scale with the cabbage shows the dial pointing to the 4th tick mark past the 2 pounds. Write a 2 in the space for pounds and a 4 in the space for ounces.

Read each scale below and fill in the blanks with the measurements.



_____ lb _____ oz

_____ oz

_____ oz

_____ lb _____ oz

Mia was curious if pounds were the largest unit used to measure weight. Her mom explained that a ton is an even greater unit of measurement. There are 2,000 pounds in a ton. Write this number in the box.

A blue whale weighs up to 150 tons!

☐ pounds = 1 ton

Circle the items that would be measured in tons.

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Four in a Row!

Using different colored pencils, take turns crossing out items and saying aloud the most reasonable unit of measurement (either ounces, pounds, or tons). The first person to get four items in a row is the winner.

a small tree	10 staples	5 grapes	3 baby carrots	a slice of bread	a vase of flowers
a battery	a few marbles	a giant dictionary	a baseball bat	an elephant	25 safety pins
socks	a house	a dog	a spoon	a truck	an apple
a hat	10 potatoes	a penny	a pen	the Statue of Liberty	a handful of nuts
a pair of shoes	a notepad	a gallon of milk	a pair of glasses	a whale	a chair

LESSON PRACTICE

Fill in the bubble for the correct abbreviation for each unit of measurement.

Ounces

○ in ○ oz ○ on

Pounds

○ pd ○ ft ○ lb

Fill in the blank or circle the correct answer.

_____ ounces = 1 pound

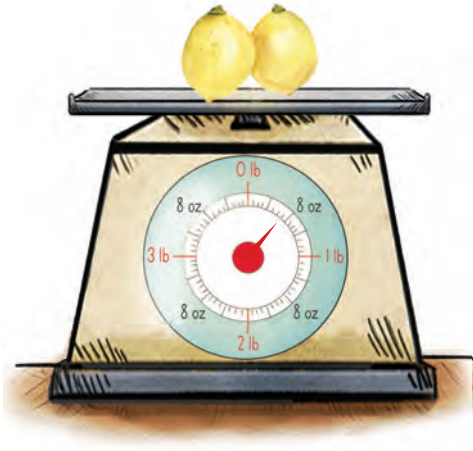
_____ pounds = 1 ton

Ounces, pounds, and tons measure: length / weight / volume

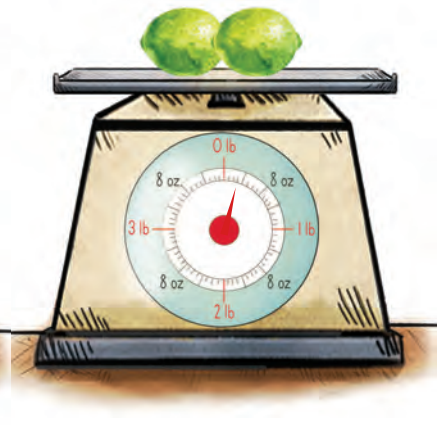
Read each scale below and fill in the blank with the measurement.

_____ lb _____ oz

_____ lb _____ oz



_____ oz



_____ oz

How many total ounces do the limes and the lemons weigh altogether? Add to find the answer.

$$\begin{array}{r} 3 \text{ oz} \\ +\ 7 \text{ oz} \\ \hline \square \text{ oz} \end{array}$$

How much more does the pumpkin weigh than the stalk of celery? Subtract to find the answer.

$$\begin{array}{r} 3 \text{ lb } 12 \text{ oz} \\ -\ 1 \text{ lb } 2 \text{ oz} \\ \hline \square \text{ lb } \square \text{ oz} \end{array}$$

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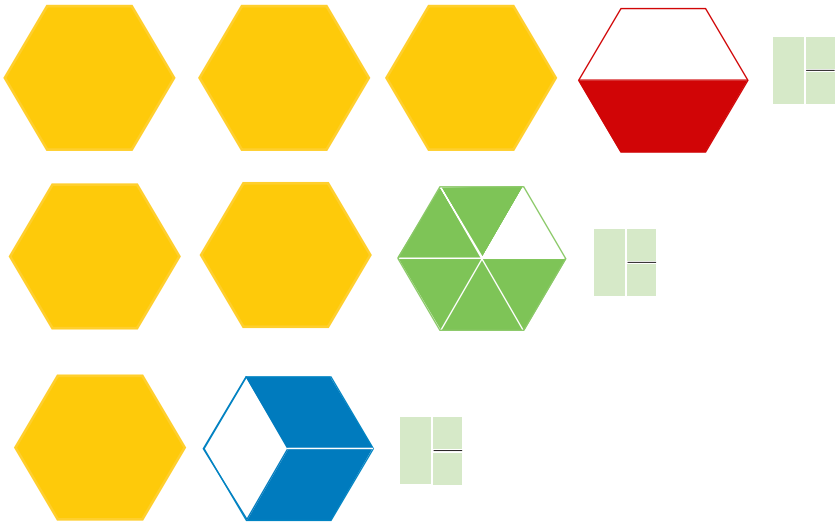
REVIEW & ACTIVITIES

Write the mixed number shown by the shaded shapes.



A fruit stand is 4 feet long. How many inches long is it? Write the answer in the green box and include the unit label.

Answer the question and complete the pattern.

42, 46, 50, 54, …

What rule does this pattern follow? _____

Write the next three numbers in the pattern. _____, _____, _____

Convert the lengths to either meters or kilometers.

2,000 m = _____ km 5,000 m = _____ km 4 km = _____ m

Write a problem that answers the question. Then complete the problem.

You bought $5.67 worth of blueberries and paid with $20.00. How much change should you receive?

For each addition problem, write the numerals shown in expanded form in the green box and complete the problems.

7,000 + 80 + 2

,
+ 1,274

5,000 + 700 + 40

,
+ 3,178

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set B for 10 minutes or more. Then complete the problems in this section.

3 × 9	9 × 4	5 × 4	4 × 4
9 × 5	3 × 7	5 × 8	7 × 4

Even or Odd? Circle all the products (answers to multiplication problems) above that are ODD.

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Lesson 56

ADDING AND SUBTRACTING FRACTIONS WITH THE SAME DENOMINATOR

Place Value

- How many tens are in 150? In 360?
- What is the value of the digit 7 in the number 7,604?
- Which digit is in the ten millions place? 382,195,463

Skip Counting

- Skip count by 9s from 9 to 99.
- Skip count by 5s backward from 100 to 0.

○ Read to the child: Today is Dad's birthday party. Mom and Mia have prepared some delicious Canadian foods for the event. The main dish is a traditional meat pie, called *tourtière* [TOUR–tee–air].

Let's suppose that Mom cut the first pie into 4 equal pieces. Draw lines on this pie to show how to cut it into 4 pieces. Shade one piece of the pie. What fraction of the pie is shaded? Yes, each part is $\frac{1}{4}$. Four of the guests each took one slice of pie. Write an addition problem to show how much pie was eaten by those guests.

$\frac{1}{4}$ + _____ + _____ + _____ = _____

guest 1 guest 2 guest 3 guest 4 total amount

The total eaten was $\frac{4}{4}$ of the pie, which is the same as one whole.

Mom cut the next pie into 6 equal pieces. What fraction of the whole pie is 1 piece? Write the fraction in the box. Now let's suppose that one guest ate 2 pieces of pie. How many sixths would that be? Write $\frac{2}{6}$ on the line below for guest 1. A second guest ate 3 pieces. How many sixths did he eat? Write $\frac{3}{6}$ on the line for guest 2. A third guest ate just one piece of pie. Write $\frac{1}{6}$ on the line for guest 3. If we add all the pieces that were eaten together, how many total sixths were eaten?

_____ + _____ + _____ = _____

guest 1 guest 2 guest 3 total amount

When the denominator (bottom number) of a group of fractions is the same, we can add the fractions together by adding the numerators (top numbers). Add these fractions together by adding only the numerators. The denominators do not change because the total number of equal parts that make the whole did not change. Write the answers in the boxes and shade the fraction circles to show the total fraction amount.

$\frac{1}{4} + \frac{3}{4} =$ ____

$\frac{2}{3} + \frac{1}{3} =$ ____

We can subtract fractions with the same denominator in the same way that we add them. We subtract only the numerators, while the denominator stays the same. For dessert Mia has prepared layered bar cookies and cut the bars into nine pieces. What fraction of the whole dessert is each bar? Write the fraction in the box to the right. Mia started with $\frac{9}{9}$. After a guest took away $\frac{1}{9}$ (or one bar), how much did she have left? Cross out one bar and count the remaining bars. Then write your answer in the box on the next page.

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$\frac{9}{9} - \frac{1}{9} = \frac{\quad}{\quad}$

Soon more guests took away some bars. The second guest took two pieces. How many ninths is that? Write the fraction on the blank line below. What fraction of the bars did Mia have left?

$\frac{8}{9} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$

A third guest took two more bars. Subtract the fraction that represents those bars from the amount she had to find the new fraction of the bars she had left.

$\frac{6}{9} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$

Suddenly, Gigi jumped up and snatched one bar away. Write the fraction for the number of bars Gigi ate. What fraction of bars are left now?

$\frac{4}{9} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$

Mia, Mom, and Dad ate one bar each. Write the fraction for the number of bars they ate altogether in the blank and subtract it from the amount remaining.

$\frac{3}{9} - \frac{\quad}{\quad} = \frac{\quad}{\quad}$

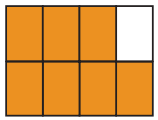
When there are zero ninths remaining, we can just write zero for the answer.

LESSON PRACTICE

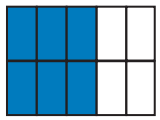
On the line below each shape, write the fraction that represents the amount shaded on each shape. Then add the fractions and shade the final circle to show the total amount.

$\frac{\quad}{\quad} + \frac{\quad}{\quad} =$ $\frac{\quad}{\quad} + \frac{\quad}{\quad} =$ $\frac{\quad}{\quad} + \frac{\quad}{\quad} =$

In the first blank box, write the fraction that represents the amount shaded on each shape. Then cross out the number of pieces that are being subtracted and complete the subtraction problem.



$\frac{\quad}{\quad} - \frac{3}{8} = \frac{\quad}{\quad}$



$\frac{\quad}{\quad} - \frac{4}{10} = \frac{\quad}{\quad}$

Pattern Block Fractions

Take the shapes from the math box. Figure out how many of each shape you need to make one whole hexagon. Then create an addition problem with fractions to show how those shapes make a whole. The denominator will be the number of parts that make the whole. The first one is shown as an example.

How many?	Addition Problem
2	$\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$

How many?	Addition Problem

How many?	Addition Problem

Add the fractions together. Remember that when fractions have the same denominator, we add the numerators and the denominator does not change. Write your answer as a fraction.

$\frac{1}{5} + \frac{4}{5} =$

$\frac{3}{7} + \frac{4}{7} =$

$\frac{1}{2} + \frac{1}{2} =$

$\frac{1}{5} + \frac{1}{5} + \frac{3}{5} =$

$\frac{2}{6} + \frac{2}{6} + \frac{2}{6} =$

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REVIEW & ACTIVITIES

Mia's Laundry Room

Fill in the bubble for the correct abbreviation.

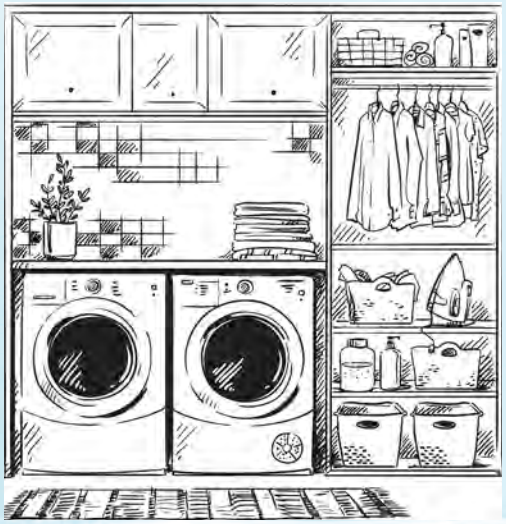
Ounces	Pounds
○ in ○ oz ○ on	○ pd ○ ps ○ lb

Fill in the blanks.

_____ ounces = 1 pound

_____ pounds = 1 ton

With a yellow colored pencil, color in two items from Mia's laundry room that you would weigh in ounces because they would each likely weigh less than a pound (16 ounces). For reference, a book weighs about 12 ounces. With a blue colored pencil, color in two items that you would weigh in pounds because they would each weigh more than a pound.



Complete the problems.

$$\begin{array}{r} 6{,}505 \\ -\ 3{,}249 \\ \hline \end{array}$$

$$\begin{array}{r} 9{,}804 \\ -\ 4{,}449 \\ \hline \end{array}$$

$$\begin{array}{r} 7{,}000 \\ -\ 3{,}249 \\ \hline \end{array}$$

$$\begin{array}{r} 6{,}904 \\ -\ 2{,}588 \\ \hline \end{array}$$

Number Banners

Complete the number patterns, and then color in your favorite banner with colored pencils. Each number pattern follows one of the rules in the box.

-110	+7	+2, +3, +4, +5 ...	-25

1, 3, 6, 10, 15

7, 14, 21

880, 770, 660

500, 475, 450

Mixed Numbers

Circle the mixed numbers.

$7\frac{1}{2}$ $\frac{3}{4}$ $\frac{1}{3}$

$\frac{4}{6}$ $10\frac{2}{5}$ $4\frac{7}{9}$

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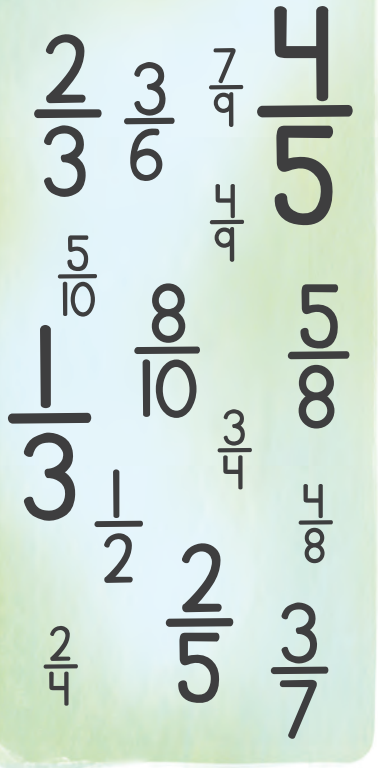
Multiplication Chart

Practice multiplication facts Set B for 10 minutes or more. Then fill in the missing numbers on the multiplication chart. You can slide your finger across a row until you get to a blank square. Then multiply the row number with the column number. Or use skip counting.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18		24		30
4	4	8	12			24		32		40
5	5	10	15		25	30	35			50
6	6	12	18	24	30	36	42	48	54	60
7	7	14			35	42	49		63	70
8	8	16	24	32		48		64	72	80
9	9	18				54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Hidden HALVES

Find and circle all five hidden fractions equal to half.



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Lesson 57

NUMBER PATTERNS: PART 2

Maple Leaf Mental Math

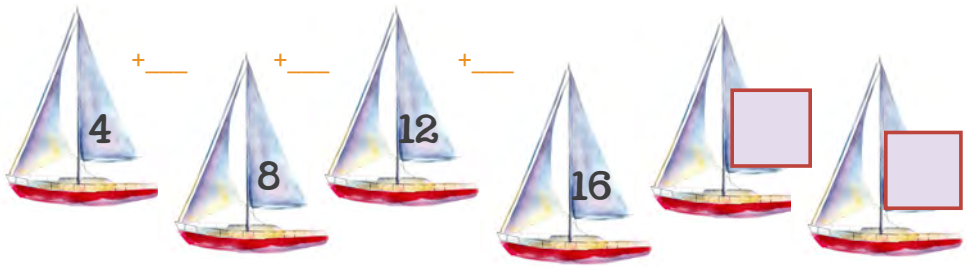
Find the missing numbers and complete the problems.

9 + ▢ = 17 ▢ = ____ ▢ + ▢ = ____

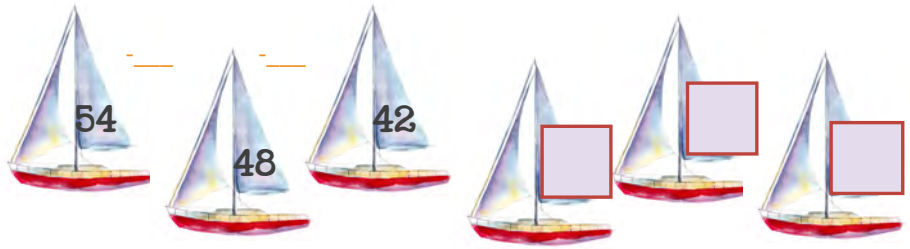
▢ − 7 = 5 ▢ = ____ ▢ − ▢ = ____

Read to the child: Canada has the longest coastline of any country in the world, and it is home to more than 750 lighthouses! A lighthouse is a tower with a very bright light at the top called a beacon that helps sailors guide their ships at night.

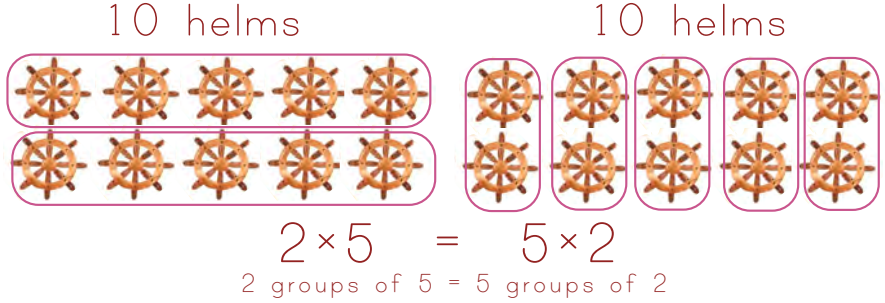
As the ships were passing by, the lighthouse keeper noticed a pattern on their sails. Find the differences between the first two numbers by subtracting 4 from 8, and write the answer in the blank between the numbers. Use this pattern to find the next numbers in the pattern.



What pattern did you see? It is increasing by 4 each time, or skip counting by 4. Let's look at a different type of pattern. Find the differences between the first two numbers by subtracting the smaller number from the greater number. Pause while the child finds the difference. Is the pattern increasing or decreasing? This time the pattern is decreasing by 6, or skip counting backward by 6. Now fill in the boxes to continue the pattern.



Arrays with rows and columns of objects demonstrate multiplication patterns. Notice below that 10 helms can be separated into 2 groups of 5 or 5 groups of 2, which both equal the same amount. The ***commutative property*** of multiplication says we can change the order of the factors 2 and 5, and the product remains the same, 10.



Fill in the blanks with the correct number by changing the order of the factors on the left side of the equation.

3 × 8 = 8 × ___

1 × 7 = 7 × ___

6 × 3 = 3 × ___

5 × 4 = 4 × ___

2 × 9 = 9 × ___

8 × 7 = 7 × ___

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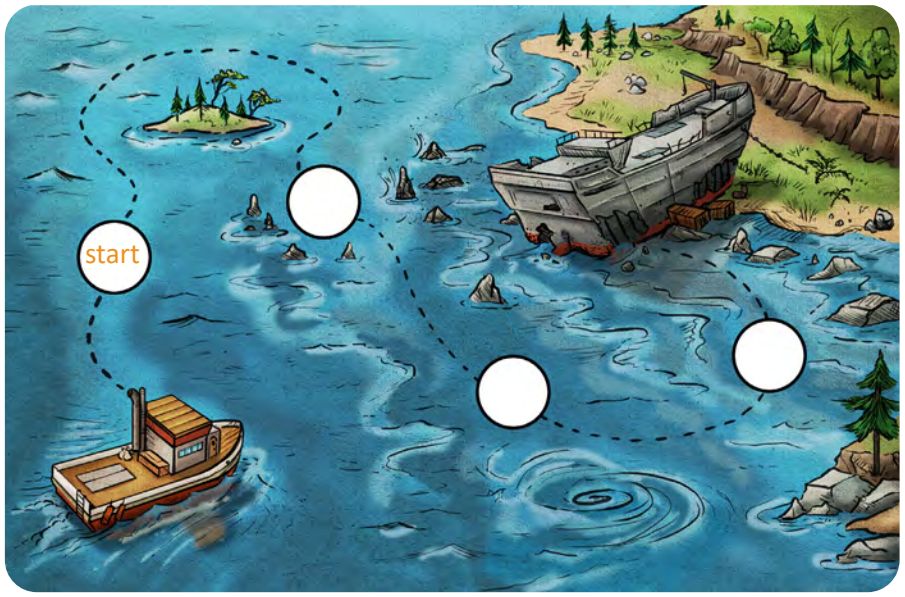
Save Our Ship! A ship has broken down and needs your help! Take a game pawn from the math box and place it on the circle titled "start." Successfully complete Challenge 1 and then move your pawn along the dotted path to the next circle to Challenge 2. Continue this process until you reach the ship that needs your help.



Challenge 1: Complete the number pattern by using repeated addition.

9, 18, 27, ___, ___, ___, ___

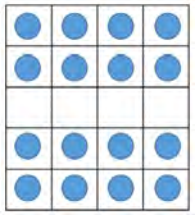
Challenge 2: Complete the number pattern by using repeated subtraction.

900, 800, 700, ___, ___, ___, ___

Challenge 3: Circle equal groups of 6 on the array of anchors, and then fill in the blanks of the problem.

___ × ___ = ___

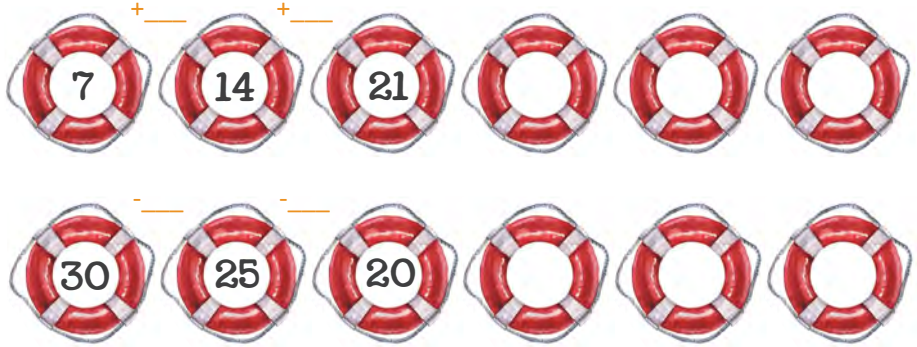
Challenge 4: Draw circles around the first array of dots to show 4 equal groups of 2. Draw circles around the second array of dots to show 2 equal groups of 4. Then use the commutative property to write an equation that models the picture.



___ × ___ = ___ × ___

LESSON PRACTICE

Find the pattern in the life preservers below. Then fill in the missing blanks.



Draw circles around the first array of compasses to show 4 equal groups of 3. Draw circles around the second array of compasses to show 3 equal groups of 4. Then use the commutative property to show an equation that models the picture.

___ × ___ = ___ × ___

Draw circles around the first array of telescopes to show 2 equal groups of 6. Draw circles around the second array of telescopes to show 6 equal groups of 2. Then use the commutative property to show an equation that models the picture.

___ × ___ = ___ × ___

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REVIEW & ACTIVITIES

Mia's Living Room

Fill in the bubble for each correct abbreviation.

Ounces	Pounds
○ in ○ oz ○ on	○ pd ○ ps ○ lb

Fill in the blanks.

_____ ounces = 1 pound

_____ pounds = 1 ton

With a yellow colored pencil, color two items from Mia's living room that you would weigh in ounces because they are each likely to weigh less than a pound (16 ounces). For reference, a book weighs about 12 ounces. With a blue colored pencil, color two items that you would weigh in pounds because they would each weigh more than a pound.

Subtract.

$$\begin{array}{r} 9{,}400 \\ -\,4{,}168 \\ \hline \end{array}$$

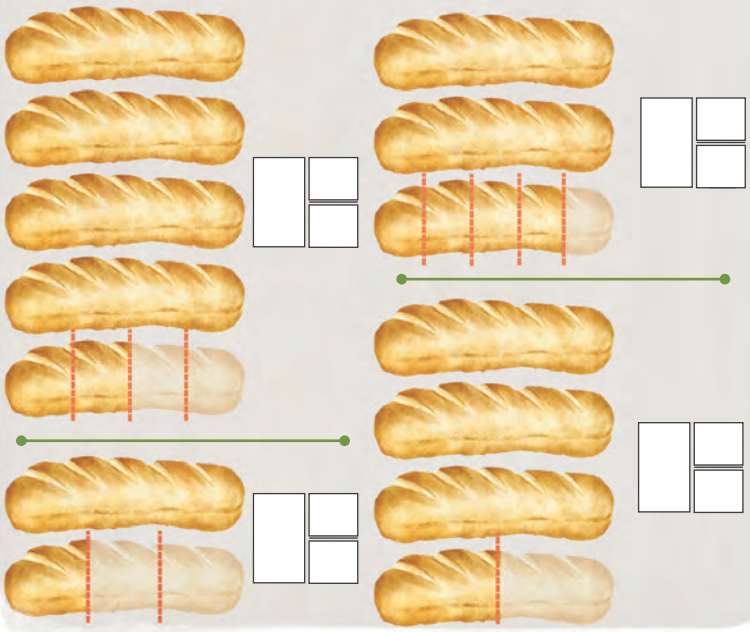
$$\begin{array}{r} 8{,}603 \\ -\,4{,}378 \\ \hline \end{array}$$

$$\begin{array}{r} 4{,}000 \\ -\,3{,}324 \\ \hline \end{array}$$

$$\begin{array}{r} 3{,}002 \\ -\,2{,}169 \\ \hline \end{array}$$

Sneaky Seagulls!

As families were picnicking by the shore, a seagull ate some of their bread. Write a mixed number to represent how much bread was left in each group of bread loaves. Count the number of whole loaves and write that number in the big box. Then write the fraction that represents the part of a loaf to the right of the whole number.



Complete the problems.

$$\begin{array}{r} 724{,}063 \\ +\ 214{,}854 \\ \hline \end{array}$$

$$\begin{array}{r} 735{,}726 \\ +\ 63{,}241 \\ \hline \end{array}$$

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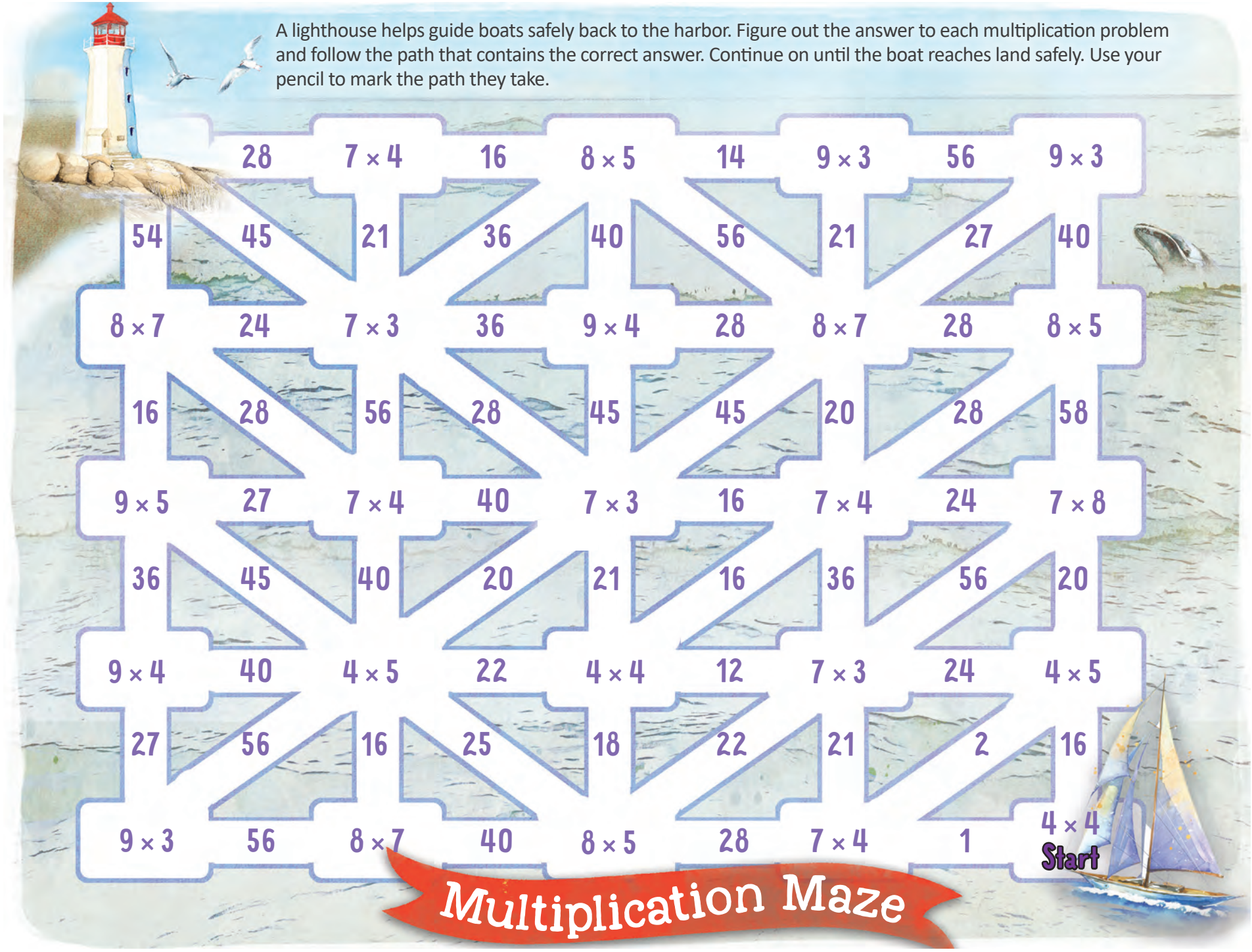

A lighthouse helps guide boats safely back to the harbor. Figure out the answer to each multiplication problem and follow the path that contains the correct answer. Continue on until the boat reaches land safely. Use your pencil to mark the path they take.

28	7 × 4	16	8 × 5	14	9 × 3	56	9 × 3
54	45	21	36	40	56	21	27	40
8 × 7	24	7 × 3	36	9 × 4	28	8 × 7	28	8 × 5
16	28	56	28	45	45	20	28	58
9 × 5	27	7 × 4	40	7 × 3	16	7 × 4	24	7 × 8
36	45	40	20	21	16	36	56	20
9 × 4	40	4 × 5	22	4 × 4	12	7 × 3	24	4 × 5
27	56	16	25	18	22	21	2	16
9 × 3	56	8 × 7	40	8 × 5	28	7 × 4	1	4 × 4

Start

Multiplication Maze

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Lesson 58

SUBTRACTION ACROSS ZEROS SHORTCUT

Temperature

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

Skip Counting

- Skip count by 7s from 7 to 77.
- Skip count by 50s backward from 500 to 0.

Read to the child: You have been practicing subtracting across zeros using the method of regrouping and borrowing shown to the right. Today, we are going to learn a shortcut for subtracting across zeros that is faster.

```
  1 9 9
  2,000
- 1,249
```

In the shortcut method, we can do all the steps of regrouping and borrowing in two steps. Start by drawing a box around the zeros that you need to borrow from until you reach a digit higher than zero. In the example to the right, the box is around number 200.

```
  2,000
- 1,249
```

We can borrow 1 from 200. What is 1 less than 200? [199] We cross out 200 and subtract 1. Write 199 above 200 and move the 10 ones that we borrowed to the ones place by writing a 1 in front of the zero. Notice how both problems have 199 written above the original problem with 10 ones in the ones place. So we know that our shortcut method will give us the same answer as the regular method. Now find the answer.

```
  1 9 9
  2,000
- 1,249
```

Every winter thousands of tourists flock to Ottawa, Canada, to enjoy outdoor activities during Winterlude. The most popular attraction, skating down the frozen Rideau Canal, can bring in as many as 10,000 people each day. On Tuesday, 9,487 people skated the canal.

Find the difference between the numbers using the subtraction across zeros shortcut. Start by drawing a box around the zeros that you need to borrow from until you reach a digit higher than zero. In this problem you will draw a box around 1 and three zeros (do not include the zero in the ones place because we are not borrowing from it). Cross out 1,000 in the box and subtract 1. Write 999 above the zeros. Then carry the 10 ones by writing a 1 next to the zero in the ones place. Now subtract to find the answer.

```
  10,000
- 9,487
```

When using this method, only include one place value with a number higher than zero in the box you draw. Each year event organizers plan for as many as 750,000 tourists. This year 643,487 came. In this problem draw a box around the 5 and the three zeros after it. Do not include the 7. What number is 1 less than 5,000? Write 4,999 above and complete the problem.

```
  750,000
- 643,487
```

This method works when subtracting across any number of zeros, even with money. When Mia's family went to Winterlude, they spent $378.27 on ice skate rentals, food, and lodging for the weekend. They had a budget of $400 for the trip. How much did they have left at the end of the trip? Put a box around the 4 and three zeros. One less than 4,000 is 3,999. Carry the 1 and write it next to the final zero. Then subtract.

```
  $400.00
- $378.27
```

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LESSON PRACTICE

Riddle Time

Figure out the answer to the riddle by completing the problems and writing the letter shown by each number on the answer lines to the riddle.

74,000 − 62,175 = S	200,009 − 174,762 = O	30,000 − 18,295 = F
6,000,000 − 5,974,783 = R	540,002 − 528,344 = T	

What can bite but has no teeth?

11,705	25,217	25,247	11,825	11,658

Lost Digits

Find the missing digits by solving the subtraction problems. (Hint: Start by regrouping across the zeros.)

500,000 − □75,□53 = 2□,5□□

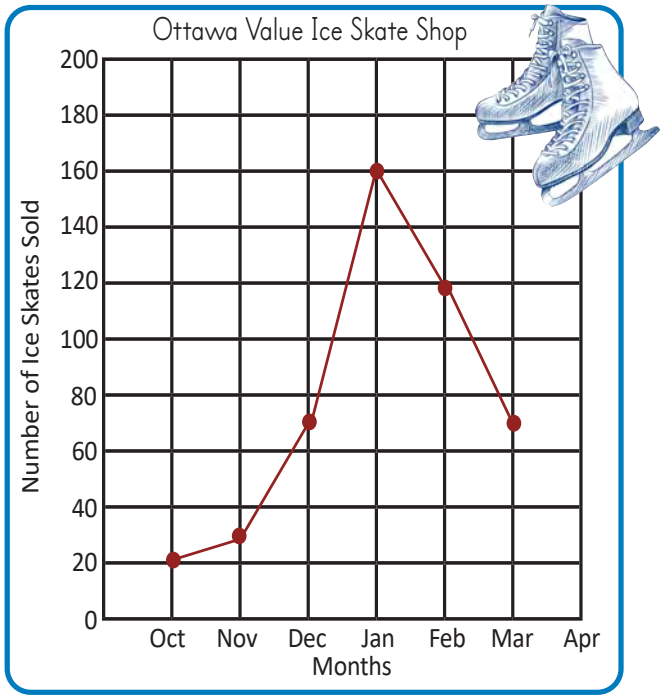
300,000 − 1□□,82□ = □25,□□4

REVIEW & ACTIVITIES

Read and then complete the section.

Line graphs help you see data trends.

On line graphs you may not be able to tell the exact amount a dot represents. Look at the dot for November. It is halfway between 20 and 40 on the graph. This dot represents a number around 30. We can use rounded numbers when using line graphs.



1. Sales really dropped off in April when the shop only sold 10 pairs of skates. On the line above April, draw a dot that represents about 10. Then draw a line from March's dot to April's dot.

2. Answer the questions:

- Which month had the highest sales? _____
- About how many skates were sold in February and about how many were sold in October? _____ February − _____ October
- About how many more skates were sold in February than October? _____ difference

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Change!

Complete the two-step story problem. Use a whiteboard or scratch paper, and write the final answer in the box.

For Gigi, Mia bought a new collar for $10.50 and a bone for $3.75. She paid for the items with $20.00. How much change did she receive back from the cashier?

✧ Multiplication Fact QUIZ – Set B ✧

Practice multiplication facts Set B for 10 minutes. Then complete the problems in this section. Have your parent or teacher record the ones you got right on the Mastery Chart on page viii.

8 × 7	3 × 9	5 × 9	4 × 5	3 × 7
5 × 4	4 × 4	7 × 3	5 × 8	9 × 4	7 × 4
9 × 3	8 × 5	7 × 8	4 × 9	9 × 5	4 × 7

Mixed Numbers Path

Beginning on "START," follow the MIXED numbers. Circle the house where you end.

Add the fractions together. Remember that when you add fractions with the same denominator, add the numerators and keep the denominator the same.

$\frac{1}{5} + \frac{3}{5} =$ ____ $\frac{3}{7} + \frac{2}{7} =$ ____ $\frac{1}{2} + \frac{1}{2} =$ ____ $\frac{1}{6} + \frac{1}{6} + \frac{3}{6} =$ ____

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LESSONS 59–60

UNIT ASSESSMENT

Parent/Teacher

Read the following information aloud to the child: Unit assessments give you practice with the math concepts learned in this unit without having you over practice concepts that you have mastered. These assessments also give you practice working on math problems for an extended period of time. This helps you to extend focus and attention span and to be better prepared for any type of testing you will have to do in the future. Here are some tips. First, make sure to always read the instructions carefully. Sometimes you can get answers wrong simply because you did not understand the instructions. Second, do not rush through exercises you think you already know. Instead, make sure to do your work carefully. Sometimes you can get answers wrong, even though you understand the concept, just because you rushed.

For Lesson 59, have the child complete all the exercises with PURPLE headers only. At this level, you may need to read some of the instructions. Correct the work. If the child makes one or more mistakes in a section, explain the concept and check the orange "Additional Practice" checkbox for that section.

For Lesson 60, have the child complete all the ORANGE sections **that are checked**. If the child still makes multiple mistakes, make sure the child understands why. All the principles will be reviewed again in upcoming units. If the child has only a few or no orange sections to practice, the child may spend time doing math games or move on to the next lesson.

Note: Concepts in Unit 2 will continue to be reviewed throughout the rest of the course, but less frequently.

Student

NUMBERS THROUGH THE MILLIONS

Circle the correct word form for the number. **7,401,365**

a) seven million, four zero one, three hundred sixty-five thousand

b) seven million, four hundred one thousand, three hundred sixty-five

Write the number in standard form.

6,000,000 + 50,000 + 2,000 + 70 + 8

Subtract.

3,500,000
− 2,995,171

Answer the questions using the number in the purple box above.

Which digit is in the ten thousands place?

Which digit is in the millions place?

Additional Practice

Circle the correct word form for the number. **2,468,731**

a) two million, forty-six eight, seven hundred thirty-one thousand

b) two million, four hundred sixty-eight thousand, seven hundred thirty-one

Write the number in standard form.

4,000,000 + 700,000 + 9,000 + 80 + 3

Subtract.

4,790,083
− 2,468,731

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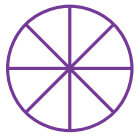
Naming and Identifying Fractions

Circle the fractions that are equal to $\frac{1}{2}$.

$\frac{2}{5}$ $\frac{5}{10}$ $\frac{1}{4}$ $\frac{4}{8}$

Shade in half of the circle. Then write the fraction that represents the amount shaded.



$= \frac{\square}{\square}$

Match each fraction to its word form.

$\frac{1}{4}$	two-thirds
$\frac{3}{5}$	one-fourth
$\frac{2}{3}$	three-fifths

Fill in the numerator or denominator to make each fraction equal to 1.

$\frac{\square}{10}$ $\frac{7}{\square}$ $\frac{\square}{2}$ $\frac{4}{\square}$

Additional Practice

Circle the fractions that are equal to $\frac{1}{2}$.

$\frac{3}{9}$ $\frac{5}{7}$ $\frac{2}{4}$ $\frac{3}{6}$

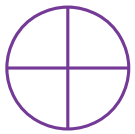
Fill in the numerator or denominator to make each fraction equal to 1.

$\frac{\square}{8}$ $\frac{\square}{3}$ $\frac{5}{\square}$

Match each fraction to its word form.

$\frac{4}{9}$	one-seventh
$\frac{2}{6}$	two-sixths
$\frac{1}{7}$	four-ninths

Shade in half of the circle to the right. Then write the fraction that represents the amount shaded.



$= \frac{\square}{\square}$

Time: 5 or 10 Minute Intervals

Draw hands on the clock to match the time written above each clock.

10 to 5

25 after 2

Fill in the blanks with the correct numbers and circle the correct term (either AFTER or TILL, PAST or TO).

_____ after till _____ o'clock

_____ past to _____ o'clock

Additional Practice

Draw hands on the clock to match the time written above each clock.

5 till 3

10 past 1

Fill in the blanks with the correct numbers and circle the correct term.

_____ after/till _____

_____ past/to _____

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EQUIVALENT FRACTIONS

Circle the set of circles that are equivalent fractions.

Fill in the blanks with an equivalent fraction by multiplying by the numbers shown.

$\frac{1}{4}\,{}^{\times 3}_{\times 3} = \frac{\square}{\square}$ $\qquad$ $\frac{2}{3}\,{}^{\times 2}_{\times 2} = \frac{\square}{\square}$

$\frac{3}{5}\,{}^{\times 5}_{\times 5} = \frac{\square}{\square}$ $\qquad$ $\frac{3}{4}\,{}^{\times 4}_{\times 4} = \frac{\square}{\square}$

Additional Practice

Circle the set of circles that represents equivalent fractions.

Fill in the blanks with an equivalent fraction by multiplying by the numbers shown.

$\frac{1}{5}\,{}^{\times 6}_{\times 6} = \frac{\square}{\square}$ $\qquad$ $\frac{2}{5}\,{}^{\times 8}_{\times 8} = \frac{\square}{\square}$

$\frac{5}{6}\,{}^{\times 7}_{\times 7} = \frac{\square}{\square}$ $\qquad$ $\frac{1}{3}\,{}^{\times 9}_{\times 9} = \frac{\square}{\square}$

COMPARE AND ORDER FRACTIONS

Fill in the comparison bubbles with the correct symbol: <, >, or =.

$\frac{1}{4} \bigcirc \frac{2}{4}$ $\qquad$ $\frac{5}{7} \bigcirc \frac{1}{7}$ $\qquad$ $\frac{3}{9} \bigcirc \frac{3}{6}$ $\qquad$ $\frac{4}{9} \bigcirc \frac{4}{8}$

Order the fractions from least to greatest.

$\frac{2}{5}$ $\frac{5}{5}$ $\frac{4}{5}$ _____ _____ _____

$\frac{2}{8}$ $\frac{2}{5}$ $\frac{2}{10}$ _____ _____ _____

Additional Practice

Fill in the comparison bubbles with the correct symbol: <, >, =.

$\frac{3}{7} \bigcirc \frac{5}{7}$ $\qquad$ $\frac{2}{10} \bigcirc \frac{5}{10}$ $\qquad$ $\frac{1}{2} \bigcirc \frac{1}{4}$ $\qquad$ $\frac{2}{6} \bigcirc \frac{2}{9}$

Order the fractions from least to greatest.

$\frac{3}{4}$ $\frac{2}{4}$ $\frac{1}{4}$ _____ _____ _____

$\frac{4}{7}$ $\frac{4}{5}$ $\frac{4}{9}$ _____ _____ _____

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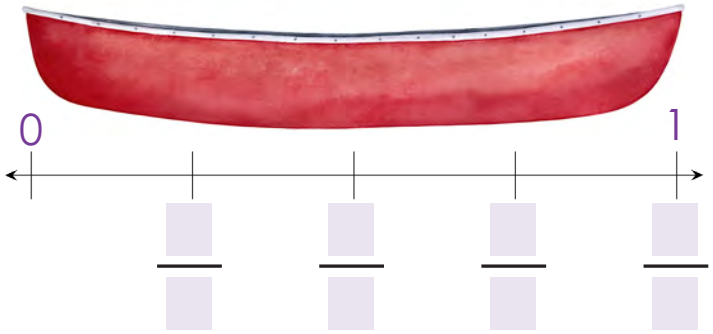
FRACTIONS ON A NUMBER LINE

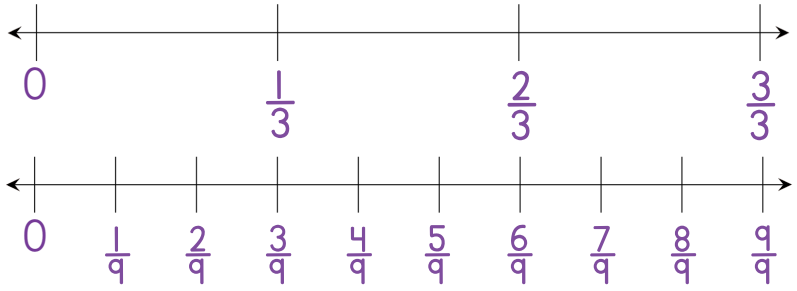
Label each segment on the number line with the correct fraction.



Compare the fractions. If needed, use the number line above.

$\frac{1}{4} \bigcirc \frac{2}{4}$ $\frac{3}{4} \bigcirc \frac{1}{4}$ $\frac{4}{4} \bigcirc \frac{2}{4}$

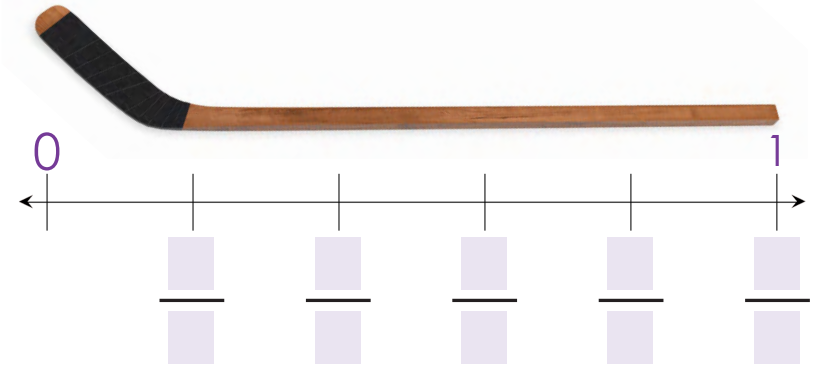
Use the two number lines below to compare fractions.



$\frac{1}{3} \bigcirc \frac{8}{9}$ $\frac{3}{3} \bigcirc \frac{5}{9}$ $\frac{2}{3} \bigcirc \frac{6}{9}$ $\frac{2}{3} \bigcirc \frac{2}{9}$

Additional Practice

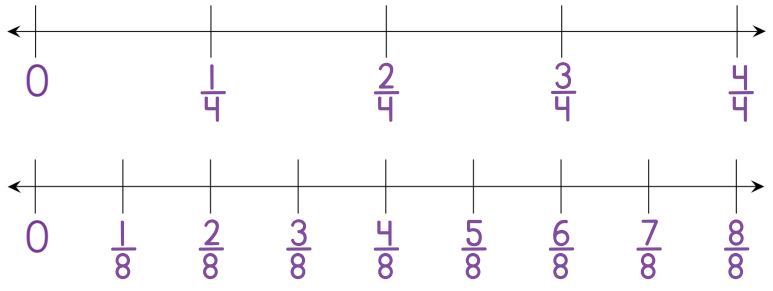
Label each segment on the number line with the correct fraction.



Compare the fractions. If needed, use the number line above.

$\frac{1}{5} \bigcirc \frac{5}{5}$ $\frac{3}{5} \bigcirc \frac{2}{5}$ $\frac{4}{5} \bigcirc \frac{3}{5}$

Use the two number lines below to compare fractions.



$\frac{6}{8} \bigcirc \frac{3}{4}$ $\frac{1}{8} \bigcirc \frac{2}{4}$ $\frac{3}{8} \bigcirc \frac{3}{4}$ $\frac{4}{4} \bigcirc \frac{5}{8}$

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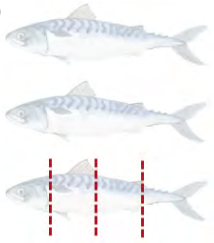
MIXED NUMBERS

Write a mixed number to describe the amount of fish that the bear ate.

Shade the amount of fish to match the mixed number shown.

$1\frac{3}{4} =$



Additional Practice

Write a mixed number to describe the amount of twigs the beaver collected.

Shade the amount of twigs to match the mixed number.

$2\frac{2}{3} =$

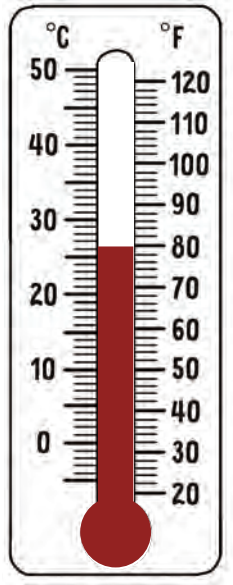
USING A THERMOMETER

Circle the correct answer. Using the Celsius scale, water freezes at what temperature?

−20 °C 0 °C 32 °C 42 °C

What temperature is shown on the thermometer? Write the answers below. Then circle the correct scene to match the temperature.

___ °C ___ °F



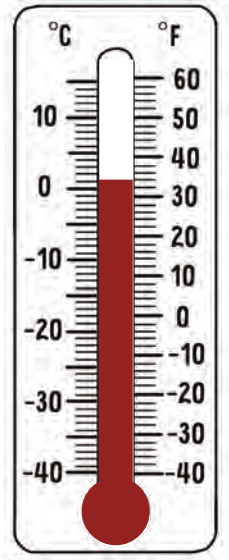
Additional Practice

Circle the correct answer. Using the Fahrenheit scale, water boils at what temperature?

160 °F 212 °F 345 °F 420 °F

What temperature is shown on the thermometer? Write the answers below. Then circle the correct scene to match the temperature.

___ °C ___ °F



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METRIC CONVERSIONS AND SYMMETRY

Fill in the blanks with the correct abbreviations.

kilometer = _____ meter = _____ centimeter = _____

Write the equivalent measures in the blanks.

1 m = _____ cm 1 km = _____ m

Convert the measurements into centimeters or meters. Then draw lines of symmetry on the shapes.

3 m = _____ cm

500 cm = _____ m

Additional Practice

Fill in the blanks with the correct unit abbreviations.

1,000 ___ = 1 km 100 cm = 1 ___

Circle the most reasonable unit of measurement for each item.

Distance from Canada to China	cm m km	Length of a pencil	cm m km
Height of a tree	cm m km		

Convert the measurements into centimeters or meters. Then draw lines of symmetry on the shapes.

2 m = _____ cm

400 cm = _____ m

US CUSTOMARY CONVERSIONS: INCHES, FEET, AND YARDS

Fill in the blanks with the correct abbreviations.

yard = _____ feet = _____ inch = _____

Write the equivalent measures in the blanks.

1 ft = _____ in 1 yd = _____ ft

How many total feet is the span of the moose antlers?

1 yd 2 ft = _____ ft

How many total inches is the length of the string of flags?

1 ft 10 in = _____ in

Additional Practice

Fill in the blanks with the correct unit abbreviations.

12 ___ = 1 ft 3 ___ = 1 yd

Circle the most reasonable unit of measurement for each item.

Length of a paper clip	in ft yd	Length of a football field	in ft yd
Height of a person	in ft yd		

Convert the length of each object into inches or feet.

2 ft 7 in = ___ in

1 yd 1 ft = ___ ft

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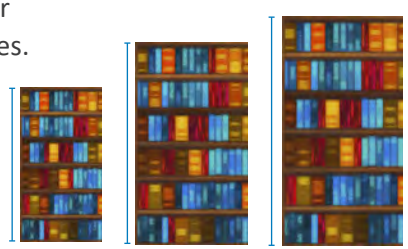
ADD AND SUBTRACT INCHES, FEET, AND YARDS

Complete each problem by adding or subtracting the yards, feet, and inches.



How many total feet and inches did the toy cars travel altogether?

	ft	in
	2	6
+	2	2

How many total yards and feet tall are the two tallest bookcases?

	yd	ft
	2	2
+	3	0

How many more inches did the red car travel than the yellow car?

	ft	in
	2	6
−	2	2

How much taller is the middle bookcase than the smallest bookcase?

	yd	ft
	2	2
−	1	1

Additional Practice

Add or subtract to find the answer.

	ft	in
	1	2
+	1	8

	ft	in
	4	11
−	3	1

	ft	in
	2	2
+	1	3

	yd	ft
	1	1
+	3	1

	yd	ft
	5	2
−	2	1

	yd	ft
	2	2
+	4	0

MONEY: COUNTING, ADDING AND SUBTRACTING

Gigi needed a new leash as well as a dog brush. What is the total cost for these items?

$15.20

$6.15

	$.	leash
+	$.	brush
	.	total

Mia paid for the leash and brush using these bills. How much change did she receive?

	$.	paid
−	$.	total
	.	change

Additional Practice

Circle the bills and coins you would use to equal the amount. Use the least number of coins.

$16.45

Subtract to find the amount of change received.

$15.00		paid
− $12.38		owed
		change

$40.00		paid
− $26.48		owed
		change

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MONEY: ROUND, AND THEN SUBTRACT

Use the prices shown for each size of maple syrup to answer the questions. Round to the nearest dollar first, and then find the answer.

About how much more does the 16 oz bottle of syrup cost than the 8 oz?

Approximately how much more does the 12 oz bottle of syrup cost than the 8 oz?

Additional Practice

Use the prices shown on the chalkboard to answer the questions. Round to the nearest dollar, and then find the answer.

Approximately how much more does the cheese plate cost than the pea soup?

Approximately how much more do the crab cakes cost than the meatball stew?

MONEY: TWO-STEP STORY PROBLEMS

Read each story problem carefully and complete it using more than one step.

Mia and her mom bought two bags of beans to make the maple baked beans for the church social. Each bag costs $5.38. They paid $20. How much change did they receive?

Both bags of beans had 349 beans each. Then 82 beans spilled onto the counter. How many beans were still left in the bags?

Additional Practice

Read each story problem carefully and complete it using more than one step.

The maple baked beans recipe makes 25 servings. Mia served 14 servings to the adults and 6 servings to the children. How many servings were left over?

There were 14 adults and 6 children who attended the church social. There were 5 people who couldn't attend it. How many total people were invited to the social?

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UNIT 3 OVERVIEW

LESSONS 61-90

Extra Supplies Needed

- measuring spoons
- sugar or salt

New Concepts Taught

- Adding and Subtracting Fractions and Mixed Numbers with Common Denominators
- Adding and Subtracting Money
- Comparing and Ordering Measurements
- Multiplication by Multiples of 10, 100, and 1,000
- Multiplication Factors
- Multiplication of 2-digit, 3-digit and 4-digit by 1-digit numbers
- Multiplication with Money
- Negative Numbers
- Story Problems with Area and Perimeter
- Using Fractions with Measurements
- Volume of Rectangular Prisms

Concepts Reviewed and Expanded Upon

- Area
- Multiples of Numbers
- Perimeter
- Weight Measurement

Parent/Teacher Tip

Go at the pace of the child. If the child is progressing slowly and is overwhelmed by the length of the lessons, consider not completing a full lesson each day. You can catch up by doing five days of school a week instead of four or by doing some lessons during summer break. If the child finishes a lesson quickly and is ready to do more, consider doing more than one lesson in a day.

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Lesson 61

PERIMETER: PART 1

Money & Mental Math

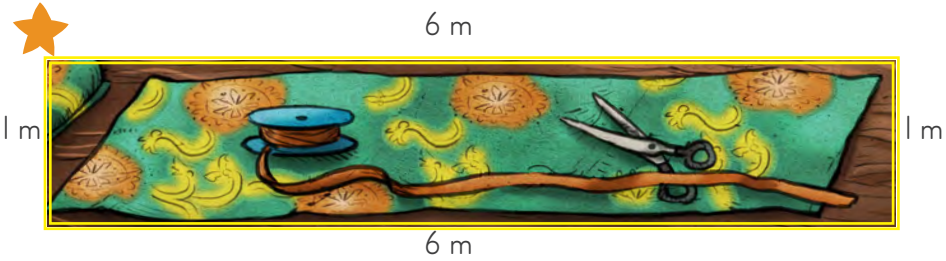
- How much are 5 nickels worth? How much are 6 quarters worth? How much money is that in total?
- If you spent 3 of the nickels and 2 of the quarters, how much money would you have left?

Calendar

- On the calendar chart, label each month using an ordinal number. (Ex: label January as 1st, February as 2nd, etc.)
- Which month is the 6th month? Which is the 9th month?

Read to the child: The Kumar family lives in the bustling city of New Delhi, which is the capital of India. Raj is 10 years old; his sisters are 13-year-old Subha and 8-year-old Kiara. Today, they are going to the fabric shop to pick out fabric to make a blouse to match a new *sari* [saw–ree], a traditional Indian dress, for their mother.

The shelves are filled with a dazzling array of rich, colorful fabrics. Their mother chooses a bolt of emerald green, and the store owner measures out 6 meters of fabric for her sari. She also needs enough yellow trim to sew along the outside edges of the fabric. Kiara wonders how they will know how much trim to buy.



To find the answer, they need to measure each edge of the fabric where the trim will be attached. The fabric is 6 meters long and 1 meter wide. Starting at the star in the top corner, trace your finger along the edge of the fabric, and then write the length of each side in the spaces below. Add up the total distance around the fabric.

____m + ____m + ____m + ____m = _____m

They will need 14 meters of trim to decorate the sari fabric.

The distance around a 2D shape is called the ***perimeter***.

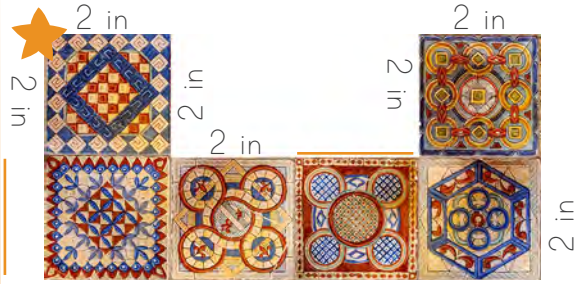
To find the perimeter of an object, add the lengths of all sides.

Raj notices some beautiful tiles on the walls of the tailor's shop. Help him find the perimeter by skip counting around the edge of the tiles, starting at the star. Write the perimeter.

perimeter =

_____ cm

Since each tile is a square, the sides are all the same length. Write in the missing measurements, and then find the perimeter of the design.



perimeter = _____ in

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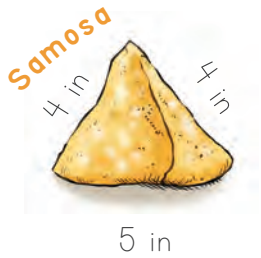
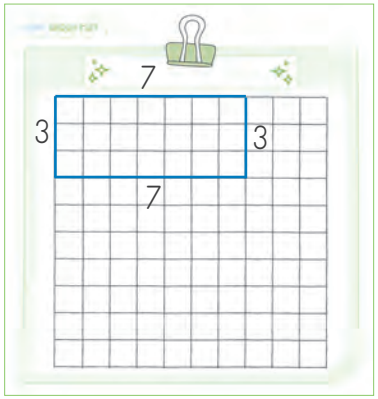
LESSON PRACTICE

This is the café that serves some of Raj's favorite treats. Add the lengths of all sides to find the perimeters and write the answers below.



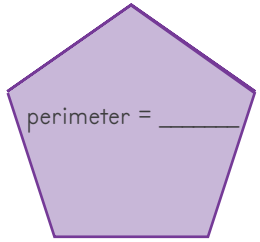
_____ _____ _____

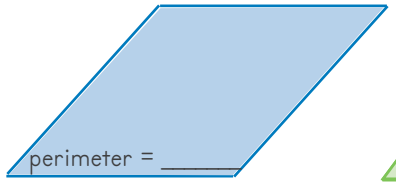
Take the array mat from the math box. Draw the rectangles on the mat according to the instructions below. Use the grid lines on the mat to measure. Then answer the questions. The first one is shown here.



- Rectangle 1: Draw a rectangle that is 7 units long and 3 units wide. Label each side and find the perimeter.
  20 units
- Rectangle 2: Draw a rectangle that is 5 units long and 4 units wide. Label each side and find the perimeter. _____
- Rectangle 3: Draw a rectangle that is 3 units long and 2 units wide. Label each side and find the perimeter. _____
- Which rectangle has the largest perimeter? _____
- Which rectangle has the smallest perimeter? _____

Take the measuring tape from the math box. Measure the sides of the shapes in **centimeters** and write the measurement next to each side. Add the length of each side together and write the perimeter for each shape.





Fun Finds

Using the measuring tape from the math box, measure the perimeter of three things around your house. Measure each side individually and add the lengths of the sides together. Measure one item in feet, one in inches, and one in centimeters. Ideas may include a book, the top of your table, a painting, a window, or this page.

Unit of Measurement	Item	Perimeter (include units)
Feet		
Inches		
Centimeters		

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Camel Safari

REVIEW & ACTIVITIES

If you visited India, you could go on a camel safari, trekking across a desert and visiting villages. Below are the costs for four different safari options. The prices are given in rupees, which is the Indian currency. You can see the rupee symbol in the problems below. One US dollar is worth a little more than 70 rupees. Use the subtraction across zeros strategy to complete the problems below.

Subtraction Across Zeros Strategy

Step 1

2,000
− 1,249

Step 2

1 9 9 1
2,000
− 1,249

3 Days	4 Days	5 Days	7 Days
85,788 rupees	95,459 rupees	100,000 rupees	110,000 rupees

Complete the problem to figure out how much more expensive the 5-day safari is than the 3-day safari.

₹100,000
−₹ 85,788
₹

Write and complete a problem to figure out how much more expensive the 7-day safari is than the 4-day safari.

₹
−₹
₹

Write and complete a problem to figure out how much more expensive the 7-day safari is than the 5-day safari.

₹
−₹
₹

Write the = (equal) or ≠ (not equal) sign between the fractions. (Hint: Equivalent fractions are different fractions that represent the same amount. Equivalent fractions are made by multiplying the numerator and the denominator by the same number.)

$\frac{1}{4} \bigcirc \frac{2}{8}$ $\frac{1}{2} \bigcirc \frac{2}{3}$ $\frac{2}{3} \bigcirc \frac{4}{6}$

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

5 × 6 =	6 × 3 =	6 × 8 =
7 × 6 =	5 × 7 =	7 × 7 =
7 × 9 =	8 × 3 =	9 × 6 =

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Lesson 62

MULTIPLICATION: FACTOR PAIRS

Calendar

Have the child complete the following.

- On the calendar chart, write the number of days in each month during a leap year.
- Which month is the 3rd month? Which is the 10th month? Which month comes after the 5th month?

Read to the child: Have you heard the story of Noah and the ark? The Bible tells us that the animals entered the boat in *pairs*, male and female, just as God had commanded Noah. A pair is something that comes in a set of two. Circle the items below that are shown in pairs.

Factors are the numbers multiplied in a multiplication problem. Look at the multiplication fact at the right. The numbers 3 and 5 are a factor pair of 15, because 3 times 5 is 15.

$3 \times 5 = 15$

FACTORS

Fill in the missing factors.

$7 \times \_\_\_ = 21$ $4 \times \_\_\_ = 32$ $10 \times \_\_\_ = 90$

$\_\_\_ \times 5 = 25$ $\_\_\_ \times 8 = 48$ $\_\_\_ \times 2 = 8$

Circle the factor pairs of 12. These are the numbers that can be multiplied together to equal 12.

6×4 1×12 2×6

9×2 5×5

3×4 0×8 7×10

Game: Take the 10-sided dice from the math box and two colored pencils. We will take turns rolling the dice and finding all animals with factors that can be multiplied to equal the number rolled. For example, if the number 4 is rolled, then we can look for 2×2 or 1×4. With a colored pencil, circle all the animals whose factor pair gives the product of the number rolled. If no factor pairs remain for the number rolled, roll again. Continue until all the animals have been circled. Whoever gets the most animal pairs is the winner. (Hint: Multiply the factors together to find the number they equal.)

1×10 2×1

2×3 1×5

7×1 3×3

5×1 1×7

1×4 4×2

2×2 1×6

9×1 1×3

2×5 1×1

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LESSON PRACTICE

Fill in each missing factor to make the statements true.

8 × ___ = 56 5 × ___ = 30 2 × ___ = 20

___ × 6 = 42 ___ × 3 = 24 ___ × 9 = 81

Write a factor pair on each pair of socks to equal the product shown on the laundry basket below the socks. An example has been done for you.

Example:

REVIEW & ACTIVITIES

Complete the problems using the subtraction across zeros strategy.

5,005	8,008	6,000
− 3,349	− 5,447	− 5,327

Continue the number patterns.

2, 4, 8, ____, ____, ____ Rule:_____

100, 90, 80, ____, ____, ____ Rule: _____

320, 340, 360, ____, ____, ____ Rule: _____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

6	5	8	7	7	6	8
× 3	× 6	× 9	× 5	× 9	× 7	× 6
9	9	8	7	7	6	7
× 8	× 6	× 3	× 9	× 7	× 8	× 6

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Tina's Tiny Framing Shop

If you completed *Simply Good and Beautiful Math 2*, you might remember Tina's Tiny Framing Shop. Today, she is framing tiny landscape photos of India. Use the measuring tape from the math box to measure each side of the photos in centimeters. In each blue box, write the perimeter of each photo. In each frame, write the total time it took Tina to make the frame for the photo.

perimeter = cm

perimeter = cm

perimeter = cm

Start: 10:05 AM
End: 10:57 AM
Elapsed Time ____ minutes

Start: 1:13 PM
End: 1:45 PM
Elapsed Time ____ minutes

Start: 9:00 AM
End: 11:00 AM
Elapsed Time ____ hours

perimeter = cm

Started: 6:30 PM
Ended: 9:30 PM
Elapsed Time ____ hours

The distance around a 2D shape is called the ***perimeter***.
To find the perimeter of an object, add the length of each side.

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Lesson 63

ADDING AND SUBTRACTING FRACTIONS WITH COMMON DENOMINATORS

Money

- How many dimes are in 3 dollars? 5 dollars?
- How many nickels are in 1 dollar? 4 dollars?
- If you have 1 quarter, 2 dimes, 3 nickels, and 4 pennies, how much money do you have?

Skip Counting

Skip count by 6s from 6 to 66.

○ Read to the child: Subha is making *shikanji* [SHIH–kahn–jee], a delicious Indian lemonade. She cut the lemon into equal slices. Look at the slices below and tell me how many there are. These four slices make one whole lemon. Suppose Subha squeezed two of the slices into one glass and the other two into another. Write a fraction under each pair of lemon slices to show the part of the whole lemon that was used for each glass of lemonade.
Since there are 4 slices in one whole lemon, use 4 for the denominator in each fraction.

Now add the fractions together. Remember that the denominator does not change because the total number of equal parts (lemon slices) does not change.

$\square/\square + \square/\square = \square/\square$

When the denominators of two fractions are the same, the fractions have a ***common denominator***.

Fractions need to have a common denominator before we can add or subtract them. Circle the problems below that have common denominators.

$\frac{2}{10} + \frac{4}{10}$ $\frac{3}{5} - \frac{3}{6}$ $\frac{6}{9} + \frac{2}{9}$ $\frac{5}{7} + \frac{7}{8}$ $\frac{2}{3} - \frac{1}{3}$

Let's suppose that Subha finished making a pitcher of lemonade, and she divided it equally into 5 glasses. She poured 3 glasses for the children and 2 glasses for the parents. Write fractions to show how much of the lemonade was for the children and how much was for the parents. Then add the fractions together. Remember that you add only the numerators. The denominator does not change because the total number of equal parts (5 glasses) does not change.

Everyone except Subha drank their lemonade right away. She saved hers for later. Let's write a subtraction problem to show what fraction of the lemonade is left. We started with a whole pitcher that was poured into 5 equal glasses. Write $\frac{5}{5}$ in the first box. If the lemonade from 4 glasses is gone, what fraction of the total is that? [$\frac{4}{5}$] Write the fraction in the next box. Now subtract. The total number of glasses does not change, so we do not change the denominator.

$\square/\square + \square/\square = \square/\square$

Add or subtract the fractions below. Remember that the denominator does not change. We add or subtract only the numbers in the numerators.

$\square/\square - \square/\square = \square/\square$

total — amount drank — amount left

$\frac{1}{4} + \frac{2}{4} = \square/\square$ $\frac{3}{7} + \frac{2}{7} = \square/\square$ $\frac{2}{6} + \frac{2}{6} = \square/\square$

$\frac{5}{9} - \frac{4}{9} = \square/\square$ $\frac{3}{3} - \frac{1}{3} = \square/\square$ $\frac{4}{5} - \frac{1}{5} = \square/\square$

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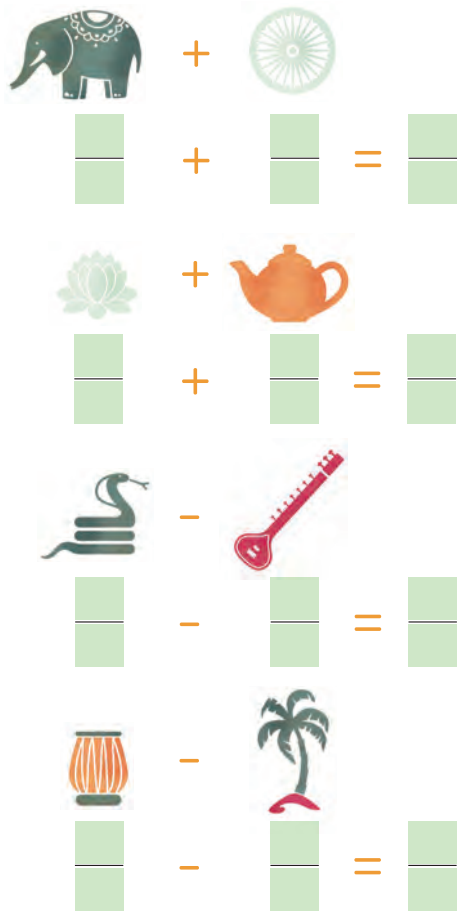
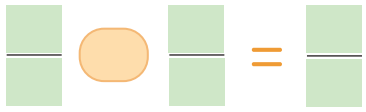
LESSON PRACTICE

Decode the problem. Then add or subtract the fractions.

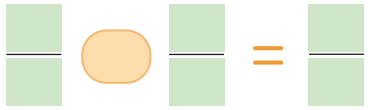


Read each story problem carefully and solve by adding or subtracting the fractions. Remember to keep the denominator the same.

Subha drank $\frac{5}{8}$ of her lemonade. Subtract to find the amount of lemonade Subha had left. (Hint: She started with $\frac{8}{8}$ lemonade.)



Raj spent $\frac{2}{5}$ of his rupees on a book and $\frac{1}{5}$ on a bookmark. Add to find the fraction of rupees that Raj spent.



REVIEW & ACTIVITIES

Each colored arc on the rainbow joins a factor pair. The factors under the rainbow go in order from least to greatest. The numbers in same-colored boxes must equal the purple number when multiplied. Fill in the missing factors.

Factors

Factors are the numbers multiplied in a multiplication problem. Look at the multiplication fact below. For the number 10, 2 and 5 are a factor pair because 2 times 5 is 10. Another factor pair for 10 is 1 and 10.

$2 \times 5 = 10$

FACTORS

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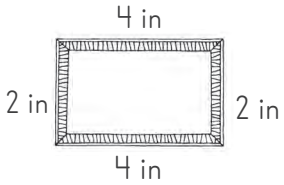
Draw circles around the first array of rupees to show 2 equal groups of 5. Draw circles around the second array of rupees to show 5 equal groups of 2. Then use the commutative property to show an equation that models the arrays.

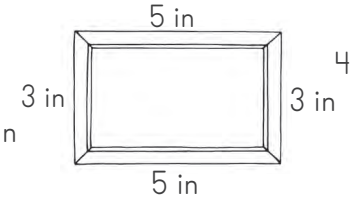
___ × ___ = ___ × ___

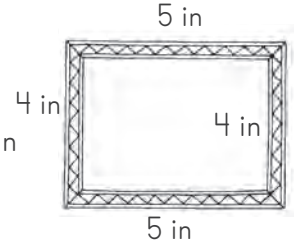
Perimeter

The distance around a 2D shape is called the ***perimeter***.
To find the perimeter of an object, add the length of each side.

Write the perimeter for each frame inside the frame, including the units.







✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

8	6	9	7	8	6
× 9	× 9	× 7	× 7	× 6	× 7

Complete the problems using the subtraction across zeros strategy.

8,000
− 3,526

9,000
− 7,651

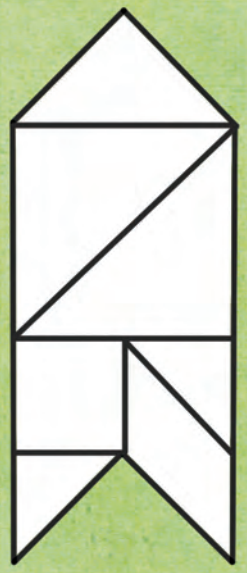
7,048
− 3,957

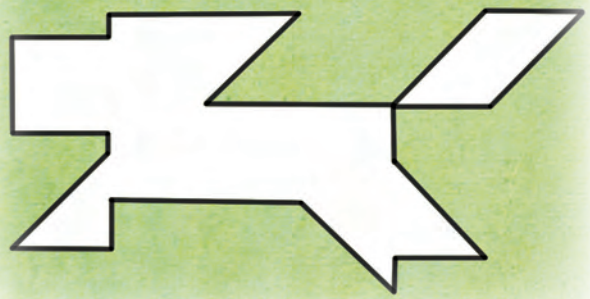
6,403
− 4,157

5,400
− 4,348

Tangram Logic

Use all the orange tangram pieces from the math box to create these shapes.





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Lesson 64

MULTIPLES OF NUMBERS

Temperature

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

Skip Counting

- Skip count by 7s from 7 to 77.
- Skip count by 25s backward from 500 to 0.

○ Read to the child: Can you think of a word that sounds similar to "multiple"? [multiply or multiplication] You have already been using multiples in this course. When you skip count, you are using multiples. You can get a ***multiple*** of a number by multiplying it by any other number. For example, in red are some multiples of 8: 8 × 1 = **8**, 8 × 2 = **16**, 8 × 3 = **24**, 8 × 4 = **32**, and so on. On the whiteboard, multiply the number 6 by 1, 2, 3, and 4, and then write the multiples of 6 in these boxes:

Multiples of 6 ☐ ☐ ☐ ☐

Like most families in New Delhi, Raj's family members walk, ride a bike, or take the bus or metro to get around town. Today, Raj's family is riding the bus to a museum across town. It costs 5 rupees for children to ride the bus. Count the money that Raj, Subha, and Kiara paid for bus fare by skip counting, and write the multiples of 5 under each rupee to find the total they paid.

Adult passengers on the bus pay 10 rupees. Count the amount paid by Mom, Dad, and 4 other adults who boarded the bus at their stop. Write the multiples of 10 under the coins to find the total.

During the bus ride, Raj noticed that the apartment building numbers have a +10 number pattern. Look at the numbers on the buildings. Even though they count up by 10s, they are not multiples of 10 because you cannot get those numbers when you multiply another number by 10.

○ Game: Choose a different colored pencil for each player. Take the 6-sided dice from the math box. Each player takes a turn rolling the dice and finding a box with a multiple of the number that was rolled. (For example, if a 6 is rolled, choose between the 6, 12, 18, 24, 30, or 36 boxes.) The player colors in the box with his or her colored pencil to claim it. The first player to get four in a row (vertically, horizontally, or diagonally) wins.

Multiples Match

6	20	24	30	12	2
8	16	40	48	36	32
10	28	21	15	35	14
33	60	4	5	18	9

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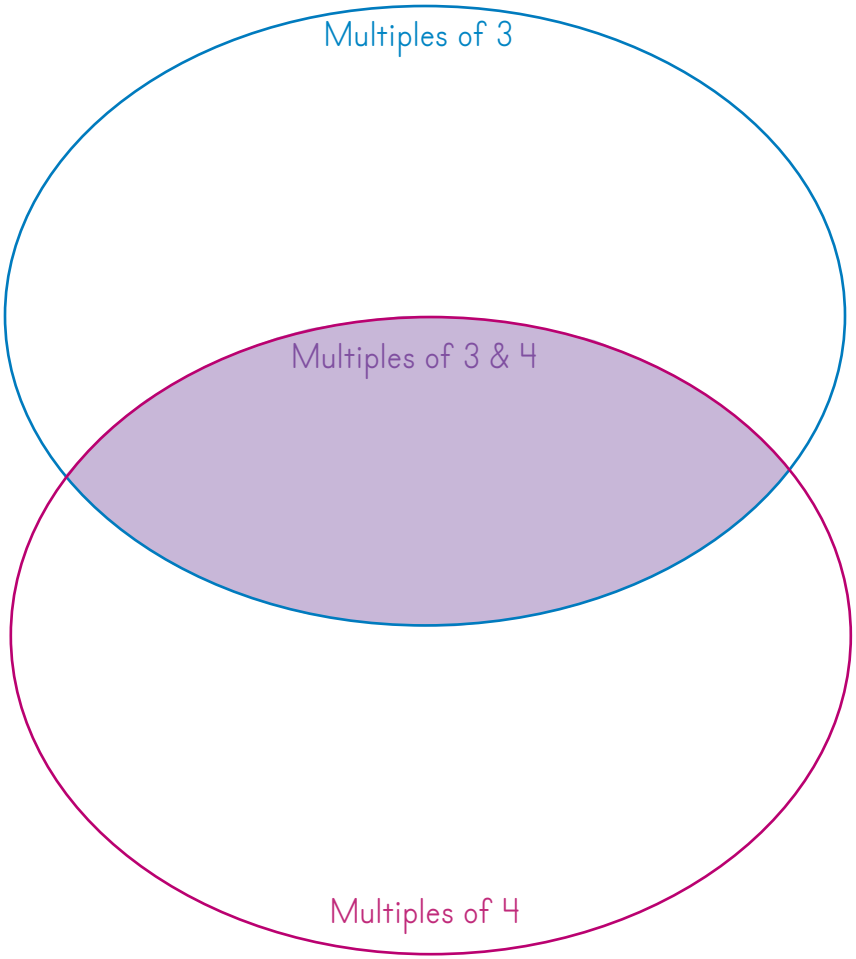
LESSON PRACTICE

Write the multiples of 3 from 3 to 36. Write the multiples of 4 from 4 to 40. Circle the numbers that appear in both lists. Then use the multiples to create a Venn diagram by writing each number in the correct part of the diagram.

Multiples of 3:

Multiples of 4:



Multiples Mysteries

In each row cross out any number that is NOT a multiple of the first number.

8	12	32	28	24
25	75	155	220	300
6	24	14	54	36
9	28	36	24	45
10	40	130	205	318
7	21	34	14	22

In each row, circle the multiples of the number in orange.

5	25	64	12	35	60	75	83	15
100	400	900	1,020	300	650			
50	250	640	120	350	600	750		

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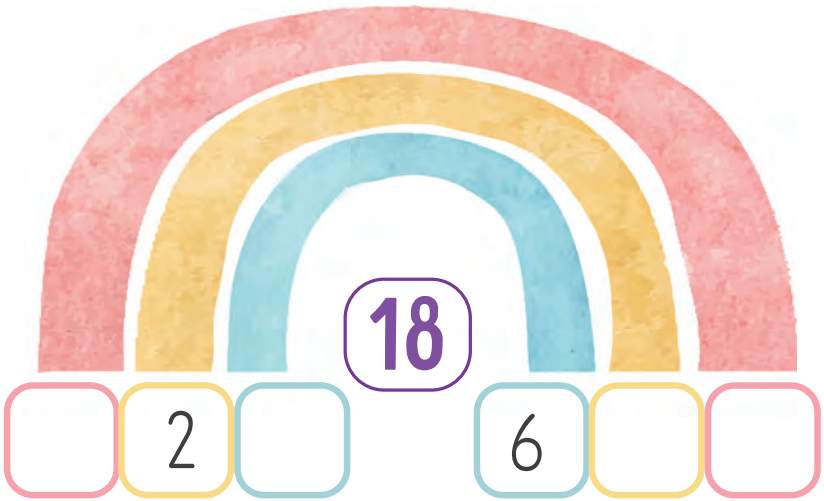
REVIEW & ACTIVITIES

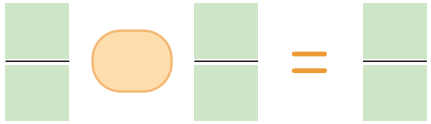
Fill in the missing factors for the number 18. The numbers in the same-colored boxes on each colored arc must equal 18 when multiplied.



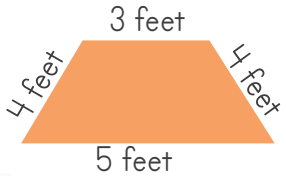
Solve each story problem by adding or subtracting fractions. Write the addition or subtraction sign in the orange space, and remember to keep the denominator the same.

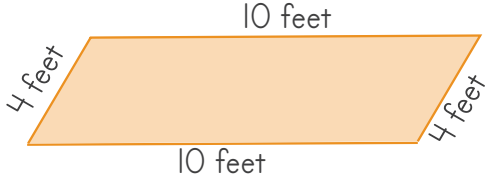
Subha finished $\frac{6}{8}$ of her homework. Subtract to find the amount Subha had left. (Hint: She started with $\frac{8}{8}$ of her homework.)

Raj read $\frac{3}{7}$ of his book yesterday and read $\frac{2}{7}$ of his book today. How much of his book has he read?



Find the perimeter of each shape and write the answer inside the shape.





Riddles

Complete the problems and use the key to answer the riddles.

c = 4
d = 5
h = 7
o = 3
e = 6
l = 2

What can you catch but not throw?

$$\begin{array}{r} 9{,}000 \\ -\ 4{,}675 \\ \hline \square\square\square\square \end{array}$$

What gets bigger the more you take from it?

$$\begin{array}{r} 8{,}600 \\ -\ 1{,}274 \\ \hline \square\square\square\square \end{array}$$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

9 × 8	9 × 6	8 × 3	7 × 9	7 × 7	6 × 8	7 × 6
9 × 7	3 × 8	6 × 9	8 × 9	5 × 6	6 × 3	7 × 5

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Lesson 65

MULTIPLYING BY MULTIPLES OF 10, 100, AND 1,000

Place Value

- How many tens are in 350? In 480?
- What is the value of the digit 2 in the number 6,297?
- What digit is in the ten millions place? 172,395,463

Skip Counting

- Skip count by 9s from 9 to 99.
- Skip count by 50s backward from 500 to 0.

○ Read to the child: Skip counting is one way to find the multiples of a number. Read the multiples of 100 and multiples of 1,000 below.

Multiples of 100:	Multiples of 1,000:
100, 200, 300, 400, 500, 600, 700, 800, 900, 1,000, ...	1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000, 8,000, 9,000, 10,000, ...

When multiplying a number by a multiple of 10, 100, or 1,000, multiply all the digits that are not 0, and then write the same number of 0s in the multiple at the end. Look at the first problem. The number 40 is a multiple of 10. Point to the digit in 40 that is not a 0. Multiply 2 and 4 together to get 8. Write 8 on the line. How many 0s are in 40? Write one 0 after the 8. Your answer is 80. Now complete the other problems.

$2 \times 40 =$ _____ $3 \times 300 =$ _____

$5 \times 3{,}000 =$ _____ $6 \times 60 =$ _____

○ Read to the child: Let's see a way that this strategy applies to real life. While shopping with his mom, Raj noticed many different spices on the shelves. Indian food is famous for its unique flavors from all the spices that are used.

One spice Raj noticed was cinnamon bay leaves (*tej patta*). There were 7 packages with 300 leaves in each package. We can multiply to find the total number of leaves.

First, multiply 7 times 3. Write this answer on the line. Since there are two 0s in the number 300, write two 0s after the 21. Then add a comma. The product of 7 and 300 is 2,100.

Step 1: 7×3

$7 \times 300 =$ _____

Step 2: write two zeros at the end

Fennel seeds were another spice Raj picked up and observed. There were 8 bags with 5,000 seeds in each bag. Let's multiply to find the total number of fennel seeds there were altogether.

First, multiply 8 times 5. Write this answer on the line. Since there are three 0s in the number 5,000, write three 0s after the 40. Even though the answer from step 1 ended in a 0, we still need to write three more 0s in step 2. Then add a comma. The product of 8 and 5,000 is 40,000. That's a lot of seeds!

Step 1: 8×5

$8 \times 5{,}000 =$ _____

Step 2: write three zeros at the end

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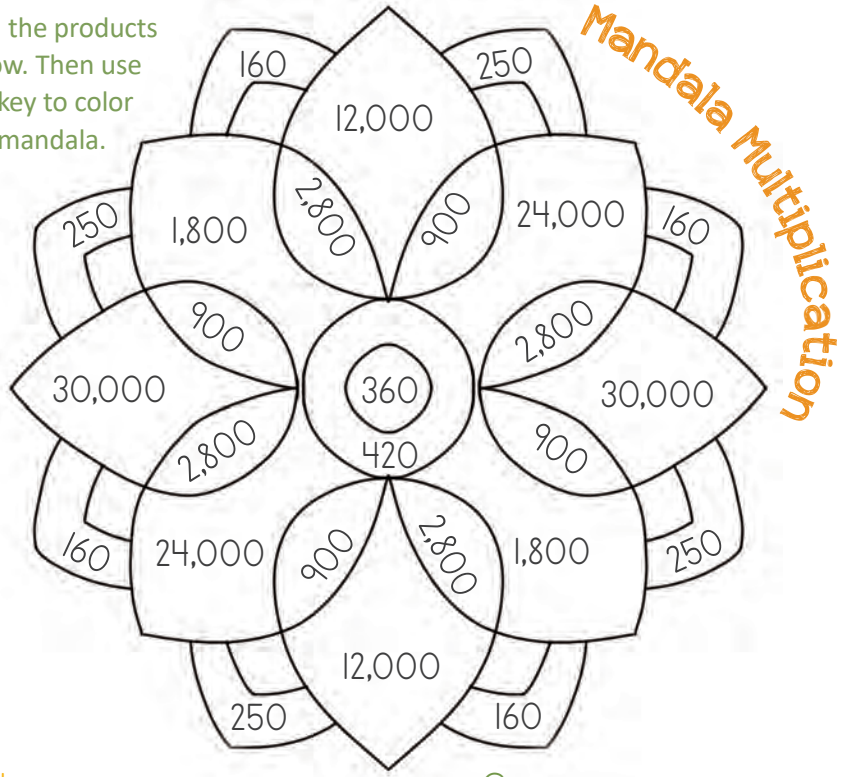
LESSON PRACTICE

Mandala Multiplication

Find the products below. Then use the key to color the mandala.



Yellow:

3 × 300 = _____

4 × 700 = _____

Orange:

4 × 90 = _____

Blue:

5 × 50 = _____

8 × 20 = _____

Green:

7 × 60 = _____

Red:

5 × 6,000 = _____

3 × 4,000 = _____

Purple:

6 × 4,000 = _____

9 × 200 = _____

SPICES ON THE SHELF

Find the products on the right. Then draw a line to match each product with the correct spice on the shelf.

6 × 600 = _____

8 × 40 = _____

3 × 700 = _____

5 × 200 = _____

9 × 30 = _____

Find the products below.

8 × 30 = _____

8 × 300 = _____

8 × 3,000 = _____

4 × 70 = _____

4 × 700 = _____

4 × 7,000 = _____

2 × 60 = _____

2 × 600 = _____

2 × 6,000 = _____

5 × 80 = _____

5 × 800 = _____

5 × 8,000 = _____

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REVIEW & ACTIVITIES

India has an area of 3,287,263 square kilometers. Complete the exercises based on this number.

Write the number on the chart.
Remember the commas.

Word Bank
million | hundred | thousand
eighty | sixty

Millions			Thousands					
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

3,287,263
square kilometers

List the digit that is in each given place value.

Millions ____

Hundred Thousands ____

Ten Thousands ____

Tens ____

Write the number in words (write small).

Write the number below using digits. Include the commas.

Eighty million, four hundred thousand, nine hundred thirty-two

MULTIPLES MAGNET

This magnet attracts multiples of 4. Circle all the multiples of 4 below (which are numbers created by multiplying 4 by another number).

4 6 14 16 44

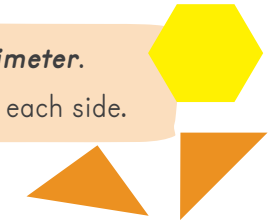
12 26 8 34 24

40 22 48 20 2

28 32 18 30 36

Perimeter

The distance around a 2D shape is called the ***perimeter***.
To find the perimeter of an object, add the length of each side.



Take the yellow hexagon, the two smallest orange triangles, and the measuring tape from the math box and follow the instructions.

Measure each side of the hexagon to the nearest centimeter and add up all the sides. Write the perimeter in the box.

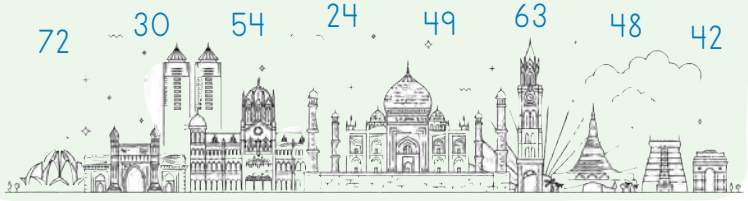
Form the two triangles into a square. Measure each side of the square to the nearest centimeter. Write the perimeter in the box.

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then draw a line from the problem to its answer.

5 × 6	9 × 8	9 × 6	8 × 3	7 × 9	7 × 7	7 × 6	6 × 8

72 30 54 24 49 63 48 42



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Lesson 66

OUNCES, POUNDS, AND TONS: PART 2

Multiplication

Multiply the following aloud:

1 × 10 2 × 7 6 × 3 5 × 4 10 × 1 7 × 2 3 × 6

Calendar

Write today's date in number format.

Example: May 4, 2022 = 05/04/2022

_____ / _____ / _____

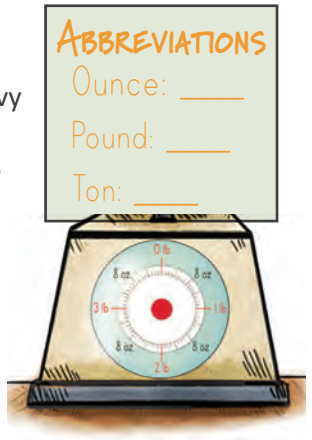
Read to the child: India is home to the Asian elephant, one of three elephant species found in the world. In the image below, there is a male elephant on the left, a female in the middle, and a newborn baby elephant on the right. A female elephant weighs about 3 tons, and a male elephant weighs about 5 tons. Newborn baby elephants weigh about 200 pounds. Write each elephant's weight on the line.

_____ tons

_____ tons

_____ lb

The smallest unit of weight in the US customary system is ***ounces***. All weight can be measured in ounces, but the numbers can get very large for heavy objects, so we use other units of weight for heavier things. ***Pounds*** is another unit for weight. There are 16 ounces in 1 pound. Do you remember the abbreviations for ounces and pounds? Write them on top of the scale.



When adult elephants are weighed in pounds, the number is quite large, so instead, we often use ***tons***. Ton is abbreviated "tn." Write "tn" on the scale above. We can figure out how many pounds a female elephant weighs because we know there are 2,000 pounds in 1 ton. Find out how many pounds equal 3 tons by using multiplication.

Step 1:
3 × 2

3 tn × 2,000 lb per tn = _____ lb

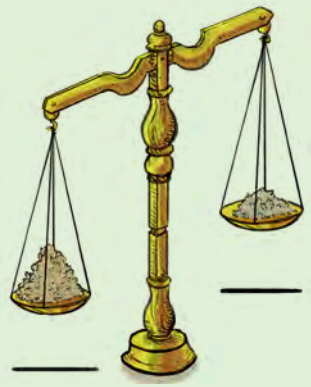
Step 2:
write three zeros at the end

Using these steps, calculate how many pounds a male elephant weighs.

5 tn × 2,000 lb per tn = _____ lb

Check the Scales

Rice is a staple food for many meals in India, and it is measured by weight on a scale. With this type of scale, the arm is balanced when each side holds an equal amount of weight. If one portion is heavier, that side will dip down. One side of this scale is holding 8 oz of rice, and the other side is holding 4 oz of rice. Write the correct weight under each side of the scale, including units.



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Read to the child: Kiara found it fascinating that similar types of things can be measured in different units, so Subha gathered some items from around their apartment and set up a game that compared the weights of similar items. Fill in the comparison bubbles with the correct symbol: >, <, or =.

Using the weights of the household items above, write the ounces and pounds in order from heaviest to lightest.

oz: _____, _____, _____, _____

lb: _____, _____, _____, _____

LESSON PRACTICE

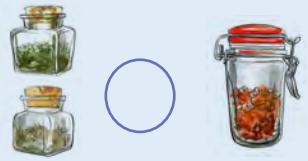
Write the most reasonable unit of measurement to weigh the following:

A mouthful of hay _____

Two bales of hay _____

A barn full of hay _____

Fill in the comparison bubbles with the correct symbol: >, <, or =.



Write the following list of weights from lightest to heaviest, starting at the top of the chart and going to the bottom. Then circle the image that best represents the weight you wrote on the left. The first is done for you.

1 ton 15 oz 35 lb 4 oz 200 lb

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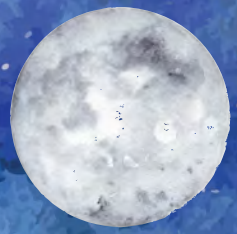
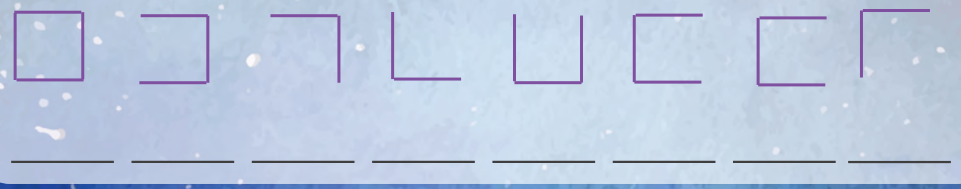
REVIEW & ACTIVITIES

NEPTUNE'S Moons

How many moons does Neptune have? Use the chart to crack the code and find out how many moons Neptune has.

s	t	r
o	f	e
u	d	n





Complete the problems. First, multiply the digits that are not 0s. Then write the number of 0s in the multiple of 10, 100, or 1,000.

6 × 6,000 = _____ 4 × 400 = _____ 2 × 2,000 = _____

5 × 5,000 = _____ 30 × 400 = _____ 9 × 2,000 = _____

Complete the problems using the subtraction across zeroes strategy.

Subtraction Across Zeros Strategy

Step 1

2,000
− 1,249

Step 2

1 9 9 1
2,000
− 1,249

7,000
− 4,572

5,003
− 3,658

✧ Multiplication Fact Practice ✧

Mark the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then write and complete a multiplication problem for each question.

If there are 5 shelves of books and 6 books on each shelf, how many books are there in total?

If you have 9 boxes of eggs with 8 eggs in each box, how many eggs do you have altogether?

If you have 9 puppies and they each have 6 spots, how many spots are there in all?

If you have 8 tricycles and they each have 3 wheels, how many wheels are there altogether?

If you bake 7 cakes and they each have 6 candles on them, how many candles do you have in total?

On each clock write the time given. Then, in the purple box, write the elapsed time from the first clock to the time on the second clock.

10 past 7:00 AM

5 till 8:00 AM

Elapsed Time _____ minutes

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Lesson 67

INTRODUCTION TO AREA

Mental Math

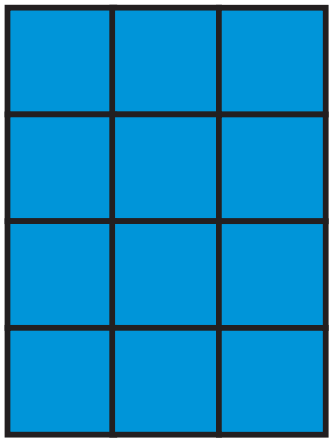
- Complete the following math problems in your head and say the answers aloud:

542 + 20 786 − 40 694 + 300 934 − 100

Skip Counting

- Skip count by 4s from 4 to 44.
- Skip count backward by 100s from 2,500 to 1,500.

Read to the child: When we measure the perimeter of a 2D shape, we measure the distance around the shape. This is helpful when, for example, we want to build a fence *around* a yard. But how do we know how much grass we would need to put *inside* the fence? We need to calculate the area. The space inside a 2D shape is called the ***area.*** Look at the blue rectangle below. To figure out how much space is inside the rectangle, we can cover it with squares and count them. Each square is called a ***square unit***.



Count the individual square units in the blue rectangle.

The total area of the rectangle is 12 square units. Finding the area means you are finding how many square units cover the surface of a 2D shape. Write the number of square units in the green and orange shapes.

_____ square units

_____ square units

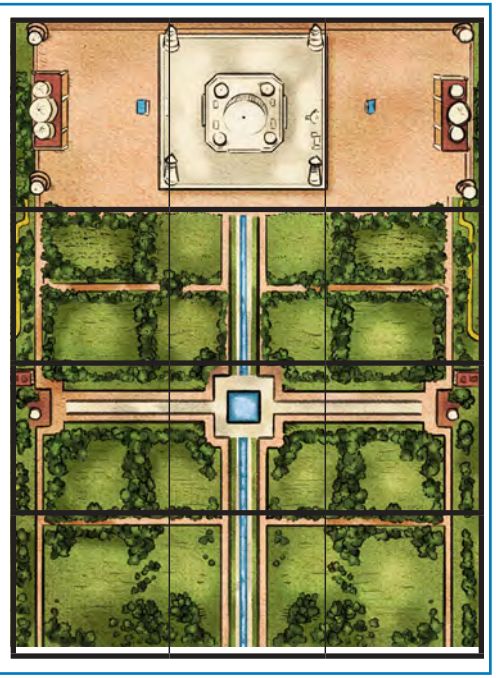
Read to the child: The Kumar family is taking a trip to the city of Agra to visit the Taj Mahal, one of the most famous buildings in all of India. During the two-hour train ride to the site, Kiara reads their guidebook to learn about the Taj Mahal and its grounds. She is amazed by the vast gardens and graceful domed design of the white marble building.

The guidebook has a map of the grounds at the Taj Mahal. How many square units make up the gardens? How many make up the buildings and platform? What is the total area of the Taj Mahal grounds? Fill in the missing numbers in the guidebook.

Gardens: _____ square units

Taj Mahal: _____ square units

Total: _____ square units



Punch out the 8 tiles from the Lesson 67 page of the Appendix. Using these tiles, arrange them to create a shape with an area of 8 square units. Pause while the child works. Then count the squares in the child's shape when he or she is finished. Now let's rearrange the squares into a different shape that still contains 8 square units. Then we'll count the squares again. Pause to count. Even though the new shape looks different, it still has the same area. Remove 2 squares from the child's shape. How many square units does your shape contain now? If you rearranged these 6 squares into a new shape, how many squares would you have?

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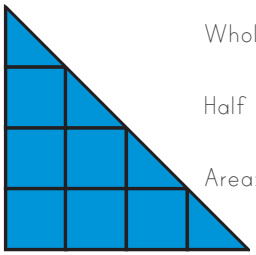
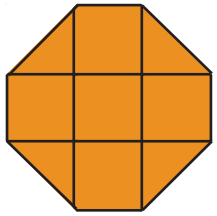
Read to the child: Sometimes you will come across a shape that does not have perfect squares, but you can still find its area. To find the area of the shapes below, first count the whole squares. Then add the half squares. Remember that 2 halves make one whole, so 2 half squares are 1 whole square.



Whole squares: _____

Half squares: _____

Area: _____ square units

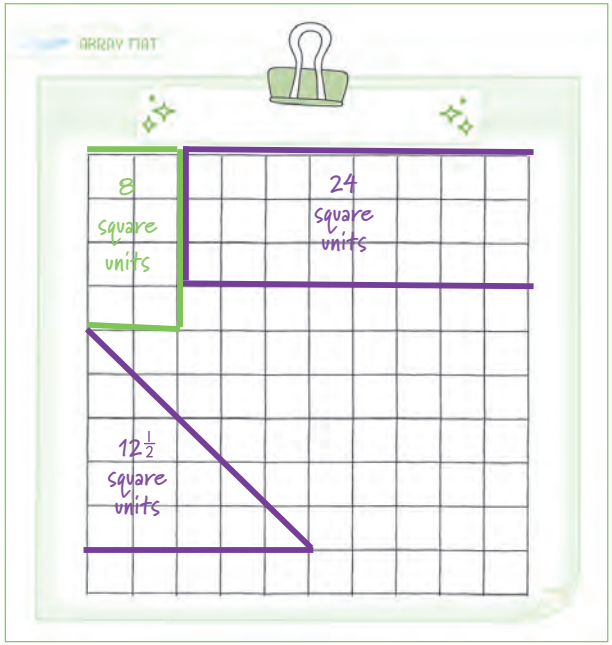


Whole squares: _____

Half squares: _____

Area: _____ square units

Area Arrays



For this game take the array mat, two colors of dry-erase markers, and the six- and 10-sided dice from the math box.

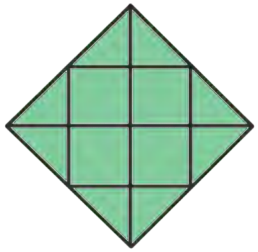
The first player rolls both dice and on the array mat draws a rectangle using the numbers rolled as the dimensions. For example, if you roll a 9 and a 2, you will draw a rectangle that is 2 units wide and 9 units long. The player counts the square units inside the shape and writes the total inside the rectangle. The second player does the same with a different colored marker.

If doubles are rolled, draw the width and length on the array mat, and then connect the two points to create a triangle. Write the total area of the triangle inside your shape.

The game ends when there is no more space to draw a shape without overlapping another shape. The person with the most total area on the mat wins.

LESSON PRACTICE

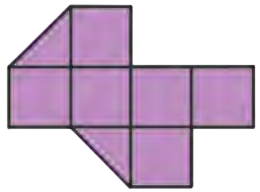
Write the area in square units for each image.



Whole squares: _____

Half squares: _____

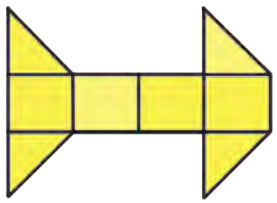
Area: _____ square units



Whole squares: _____

Half squares: _____

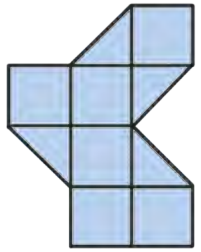
Area: _____ square units



Whole squares: _____

Half squares: _____

Area: _____ square units



Whole squares: _____

Half squares: _____

Area: _____ square units

With the area tiles from the lesson, make three shapes that each have an area of 6 square units. Then make a shape that is 2 square units wide and 4 square units tall. How many square units does the shape contain? _____ square units

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REVIEW & ACTIVITIES

MULTIPLES MAGNET

This magnet attracts multiples of 6. Circle all the multiples of 6 below (which are numbers created by multiplying 6 by another number).

6 1 13 12 15

20 18 22 30 22

19 24 14 21 7

60 25 42 36 44

Fill in the blanks. Use scratch paper to complete the problems.

1 pound = _____ ounces

1 ton = _____ pounds

The Indian scops owl weighs 5 ounces. How many more ounces would it need to weigh to be 1 pound?

_____ oz

The Indian eagle owl is 2 pounds 6 ounces. How many ounces is it?

2 lb 6 oz

_____ oz

\+ 6 oz

_____

total oz

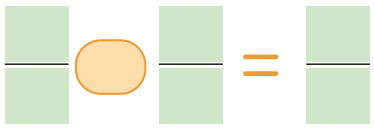
✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

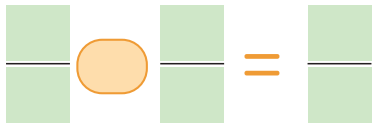
3 × 6	8 × 6	5 × 6	3 × 8
7 × 7	7 × 6	5 × 7	9 × 7

Subha and Raj are going with their family to Baga Beach, one of the best beaches in India. Solve each story problem by adding or subtracting fractions.

The family drove $\frac{4}{8}$ of the way on Monday. How much farther do they have to go?



Raj read $\frac{3}{7}$ of his book on the way to Baga Beach and $\frac{3}{7}$ when he got there. How much of his book has he read?



Factors are the numbers multiplied in a multiplication problem.

3 × 5 = 15

FACTORS

Write two or three sets of factors for each number.

9	18	12
FACTORS	FACTORS	FACTORS
×	×	×
×	×	×
	×	×

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Lesson 68

MULTIPLICATION: TWO-DIGIT BY 1-DIGIT NUMBERS

Mental Math

Add and subtract, and then answer aloud.

452 + 100 = 684 - 200 = 232 + 500 = 861 - 400 =

Skip Counting

Skip count by 9s from 9 to 99.

○ Read to the child: You have learned to multiply 1-digit numbers by other 1-digit numbers, such as 4 × 3 and 5 × 3. Today, you are going to learn to multiply 2-digit numbers by 1-digit numbers. As I slowly read each of the following two steps, point to the digits I am talking about.

Step 1
Multiply the bottom number by the digit in the ones place in the top number.

Step 2
Multiply the bottom number by the digit in the tens place in the top number.

$$\begin{array}{r} 34 \\ \times\ 2 \\ \hline 8 \end{array} \qquad \begin{array}{r} 34 \\ \times\ 2 \\ \hline 68 \end{array}$$

Now you try it. In the first problem, start by multiplying 3 times 2. Then multiply 3 times 3. In the next problem, follow the same steps. If the product of step 2 is greater than 9, write the first digit in the hundreds place and the second digit in the tens place.

$$\begin{array}{r} 32 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 41 \\ \times\ 4 \\ \hline \end{array}$$

Complete these three problems following the two steps.

$$\begin{array}{r} 24 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 13 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 31 \\ \times\ 5 \\ \hline \end{array}$$

○ Have a whiteboard and dry-erase marker ready. Take the 6-sided dice and two game pawns from the math box. Read to the child: Let's play Multiplication Tour. Place the game pawns on "Start." You go first. Roll the dice and move that many spaces. Write the problem vertically on the whiteboard and find the answer. If the product is greater than 300, go again. Continue until you reach a problem that does not have a product greater than 300. Then it is my turn. The first person to get all the way around India wins! Repeat the game one or more times.

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LESSON PRACTICE

Today, Mom and the girls are at a baby shower. Find the product of each problem. Then write the numbers in the matching colored boxes below to find the birth date of Subha and Kiara's new cousin. (Write one digit in each box.)

$$\begin{array}{r} 13 \\ \times\ 3 \\ \hline \square\square \end{array} \qquad \begin{array}{r} 21 \\ \times\ 2 \\ \hline \square\square \end{array}$$

$$\begin{array}{r} 50 \\ \times\ 5 \\ \hline \square\square\square \end{array} \qquad \begin{array}{r} 42 \\ \times\ 4 \\ \hline \square\square\square \end{array}$$

$\square\square$ / $\square\square$

month day

Which month is the 12th month of the year? Circle the correct answer.

November | December

October | September

Find the product of each problem, and then match it to the gift below to find out who gave each item at the party.

Subha $\begin{array}{r} 32 \\ \times\ 4 \\ \hline \end{array}$ Kiara $\begin{array}{r} 61 \\ \times\ 5 \\ \hline \end{array}$ Mom $\begin{array}{r} 53 \\ \times\ 3 \\ \hline \end{array}$ Grandma $\begin{array}{r} 40 \\ \times\ 7 \\ \hline \end{array}$ Aunt Amara $\begin{array}{r} 74 \\ \times\ 2 \\ \hline \end{array}$

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REVIEW & ACTIVITIES

Area Arrays

Step 1: Take the array mat from the math box.

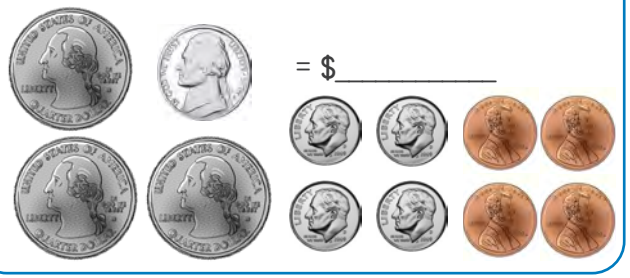
Step 2: With a dry-erase marker, draw shapes with the following dimensions:

2 units wide and 3 units long
1 unit wide and 4 units long
3 units wide and 5 units long
4 units wide and 7 units long

Step 3: Write the total square units inside each shape.

Step 4: Show your work to your parent or teacher.

Write the total amount of money.



= $_____

Write the abbreviations below and complete the conversion chart for the US customary system's units of weight.

ABBREVIATIONS

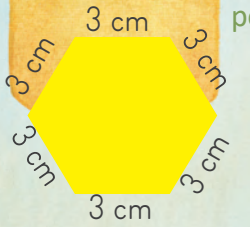
ounce: ____
pound: ____
ton: ____

_____ ounces = 1 pound

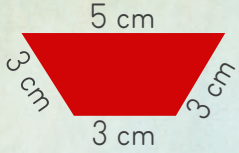
_____ pounds = 1 ton

Pattern Block Perimeters

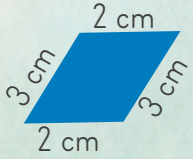
Add the length of each side to find the perimeters of the shapes.



Addition Problem | Perimeter



Addition Problem | Perimeter



Addition Problem | Perimeter

Addition Problem | Perimeter

Lost Digits

Find the missing digits by completing the subtraction problems. Hint: Start by re-grouping across the 0s.

$$\begin{array}{r} 500{,}000 \\ -\ \square 75{,}\square 53 \\ \hline 2\square{,}5\square \end{array} \qquad \begin{array}{r} 300{,}000 \\ -\ 1\square{,}82\square \\ \hline \square 25{,}\square 4 \end{array}$$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

7	6	8	5	6	7
× 7	× 9	× 9	× 6	× 3	× 6

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Lesson 69

NEGATIVE NUMBERS AND TEMPERATURE

Temperature

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

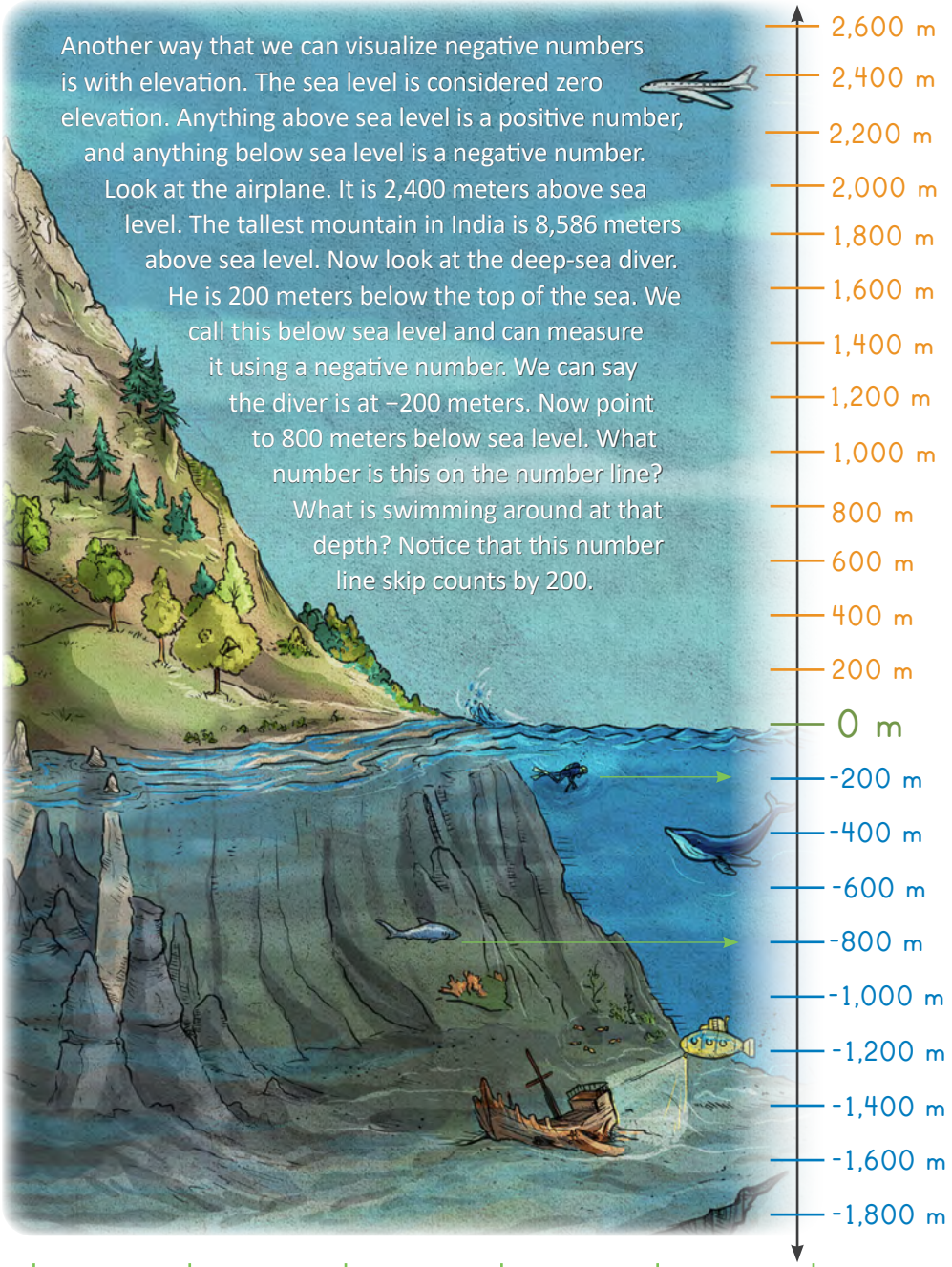
Skip Counting

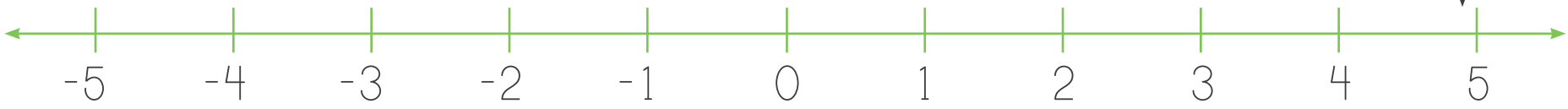
- Skip count by 7s from 7 to 77.
- Skip count by 3s backward from 36 to 0.

Read to the child: When you started learning about numbers, you began at one and learned to count up. In this course we have worked with numbers up into the millions. These numbers are positive numbers. Today, we are going to learn about negative numbers, which are numbers less than 0. Zero is not positive or negative.

Negative numbers are numbers less than zero.

Let's look at negative numbers on a number line. Point to 0 on the number line below. If you count up 2 spaces, where will you land on the number line? Now, go back to 0 and count down 2 spaces. This is negative 2. We write it with a minus sign in front of the number. Starting at the 0 again, count down and say each number aloud as you point to it. The child should say "negative one, negative two, negative three, negative four, negative five." Notice how the negative numbers follow the same pattern as positive numbers.


Another way that we can visualize negative numbers is with elevation. The sea level is considered zero elevation. Anything above sea level is a positive number, and anything below sea level is a negative number. Look at the airplane. It is 2,400 meters above sea level. The tallest mountain in India is 8,586 meters above sea level. Now look at the deep-sea diver. He is 200 meters below the top of the sea. We call this below sea level and can measure it using a negative number. We can say the diver is at −200 meters. Now point to 800 meters below sea level. What number is this on the number line? What is swimming around at that depth? Notice that this number line skip counts by 200.
2,600 m
2,400 m
2,200 m
2,000 m
1,800 m
1,600 m
1,400 m
1,200 m
1,000 m
800 m
600 m
400 m
200 m
0 m
-200 m
-400 m
-600 m
-800 m
-1,000 m
-1,200 m
-1,400 m
-1,600 m
-1,800 m



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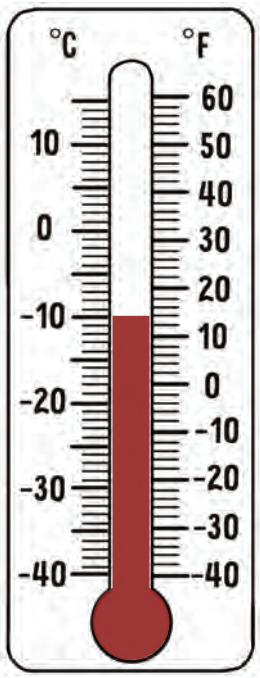
You have been measuring temperature using a thermometer, which uses a vertical number line. Thermometers often include negative numbers because temperatures can drop below 0 degrees. Look at the thermometer on the right. What temperature does it show in degrees Celsius? Another way to say this temperature is 10 degrees below 0. The lower the temperature is, the farther the negative number will be from 0. Draw a line on the thermometer at −40 degrees Fahrenheit. Is this temperature warmer or colder than −10 degrees Celsius?



LESSON PRACTICE

Circle the correct answer to each question. Use the image of the sea levels from the lesson.

- Which object is found at −400 meters?

  shipwreck | whale | deep-sea diver

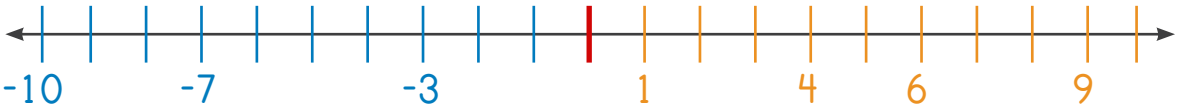
- Which object is found at −1,400 meters?

  submarine | whale | shipwreck

- Which object is found at −1,200 meters?

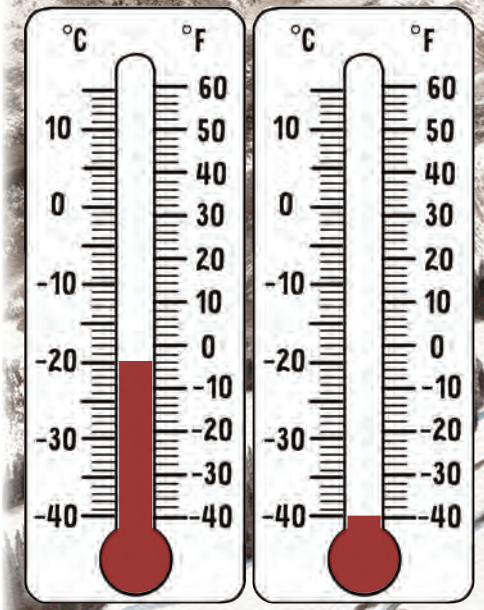
  shark | whale | submarine

Complete the number line below. Write 0 under the red tick mark. Fill in the missing positive numbers counting up by 1s from 1 to 10 under the orange tick marks. Then under the blue tick marks, write the negative numbers by counting down by 1s from −1 to −10, moving away from 0 toward the left.



Temperatures on very tall mountains are extremely cold. Help the hikers record the daily high and low temperatures during their hike up Kanchenjunga.

Write the temperatures shown on the thermometers in degrees Celsius and Fahrenheit.

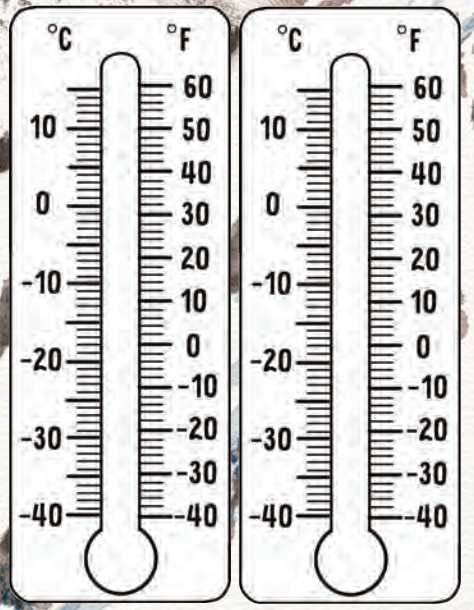


HIGH
_____ °C
_____ °F

LOW
_____ °C
_____ °F

Circle the thermometer above that shows the lower (or colder) temperature.

Shade the thermometers to show the correct temperatures in degrees Celsius and Fahrenheit.



HIGH
−10 °C
14 °F

LOW
−30 °C
−22 °F

Circle the thermometer above that shows the higher (or warmer) temperature.

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REVIEW & ACTIVITIES

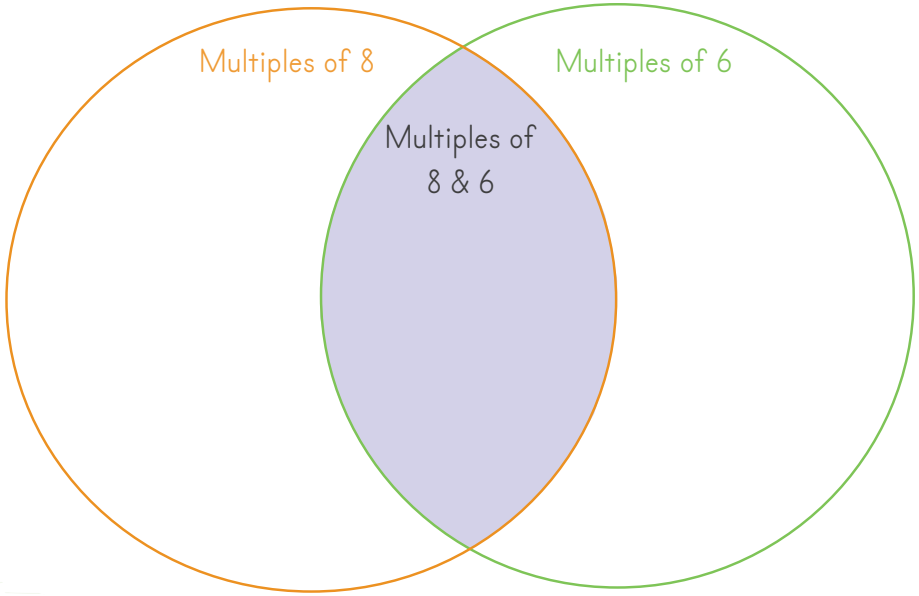
Complete the problems. First, multiply the bottom number by the digit in the ones place in the top number. Then multiply the bottom number by the digit in the tens place in the top number.

$$\begin{array}{r} 42 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 61 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 53 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 30 \\ \times\ 5 \\ \hline \end{array}$$

Write the multiples of 8 from 8 to 80. Write the multiples of 6 from 6 to 72. Circle the numbers that appear in both lists. Then use the multiples to create a Venn diagram by writing each number in the correct part of the diagram.

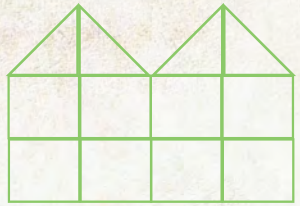
Multiples of 8:

Multiples of 6:



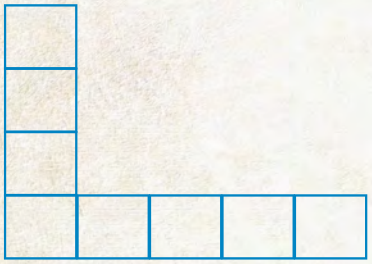
Write the area in square units for each image.

Area: _____ square units



Whole squares: _____ Half squares: _____

Area: _____ square units



Area: _____ square units

Whole squares: _____ Half squares: _____

Area: _____ square units

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then draw a line from the problem to its answer.

$$\begin{array}{r} 9 \\ \times\ 7 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ \times\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 5 \\ \times\ 6 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 7 \\ \times\ 5 \\ \hline \end{array}$$

54 72 63 24 18 35 30

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Lesson 70

GRAMS AND KILOGRAMS: WEIGHT OF OBJECTS

Mental Math

0 + 21 = _____ 159 + 0 = _____ 1,742 + 0 = _____

Read aloud: You can add 0 to any number, and it does not change the number.

Continue the Patterns

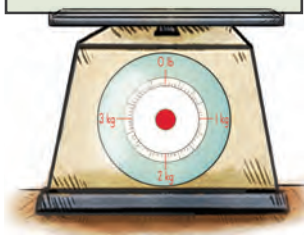
- 70, 140, 210, _____, _____, _____, _____, _____, _____
- _____, _____, _____, 256, 266, 276, _____, _____

Read to the child: We have learned about the US customary system, which uses inches, feet, yards, and miles to measure distance and ounces, pounds, and tons to measure weight. The metric system uses centimeters and meters to measure distance, and today we will learn about measuring weight using the metric system.

Abbreviations

gram: _____

kilogram: _____



The most common metric units for measuring weight are the gram and kilogram. *Kilo* is Latin for "thousand," so 1 kilogram is equal to 1,000 grams.

The abbreviation for gram is the lowercase letter g, and the abbreviation for kilogram is the lowercase letters kg. Fill in the abbreviations on the scale to the left.

An object that only weighs 1 gram is very light. Examples of things that weigh about one gram include a paper clip, a dollar bill, and a pen cap. Things that weigh about one kilogram include a liter of water, a thick dictionary, and a pineapple. Write "1 g" or "1 kg" beneath each object in the next column to show the approximate weight of that item.

_____ _____ _____ _____

Read to the child: Raj and his mother went to the corner market to buy ingredients for the evening meal. Raj examined their shopping list as they walked down the street.

Shopping List:

2 kg potatoes

250 g yogurt

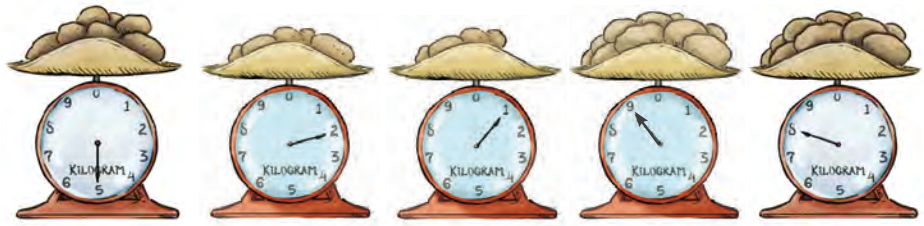
2 kg onions

50 g ground ginger

"Is this everything we need to make our meal?" he asked.

"No, those are the things we are missing. There are many more ingredients in our recipe," she said.

The market was busy with customers as Raj and his mother shopped. Raj lifted a potato. "How do I know how much we need?" he asked. His mother pointed to a scale. "You weigh the potatoes by adding them to the scale until it reads 2 kilograms." Which scale holds the correct number of potatoes?



Yogurt is next on the list. Which container should they purchase for their recipe?

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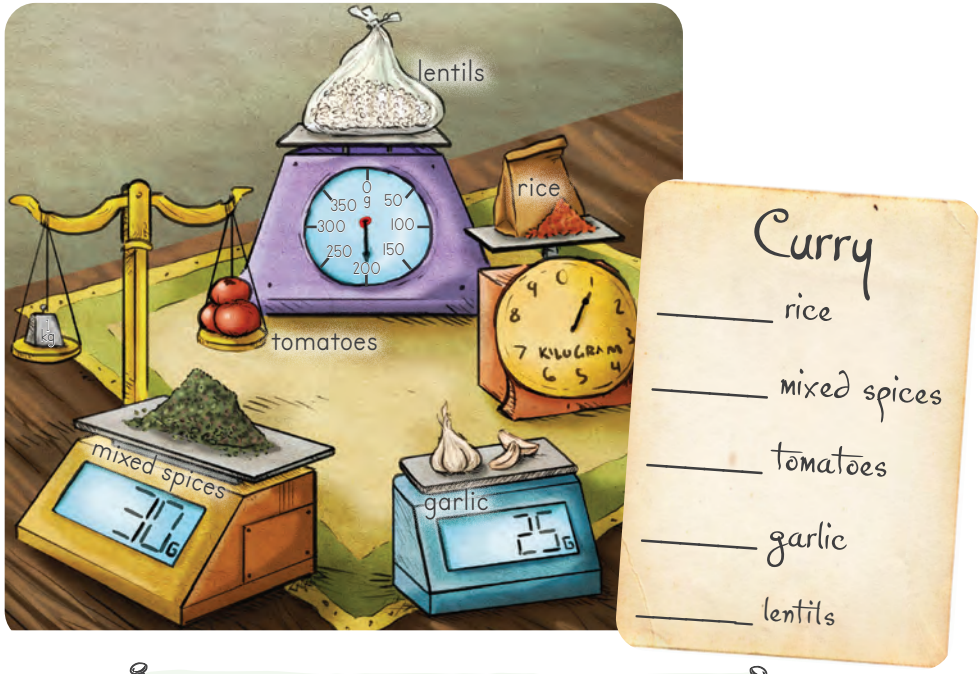
A shopkeeper approached with a different type of scale. He held the scale in one hand and placed a 2 kg weight on one side. Then he started loading onions onto the other side. When the arm of the scale was straight across, they knew there were exactly 2 kg of onions on the scale, and the shopkeeper bagged them up. Which scale shows the onions they purchased?

Finally, there was only one item left. How would they weigh the powdery ground ginger? The shopkeeper smiled at Raj. "How much do you need?" he asked. He took a paper square and placed it on a scale, scooping a spoonful of powder onto it. Which scale has 50 g of ginger?

Back at home the cooking began, and everyone jumped in to help. Subha cooked the *paneer*, a type of cheese. Kiara peeled the potatoes as Mom cut them into cubes. Raj was in charge of weighing the rest of the ingredients and adding them to the pot. Read the scales and write the correct weight on each ingredient on the recipe card.



LESSON PRACTICE

Circle the most reasonable unit you would use to weigh each item.

Pot of curry	Bowl of curry	Spoonful of curry
kilograms grams	kilograms grams	kilograms grams
Piece of bread	Sack of flour	Basket of fruit
kilograms grams	kilograms grams	kilograms grams

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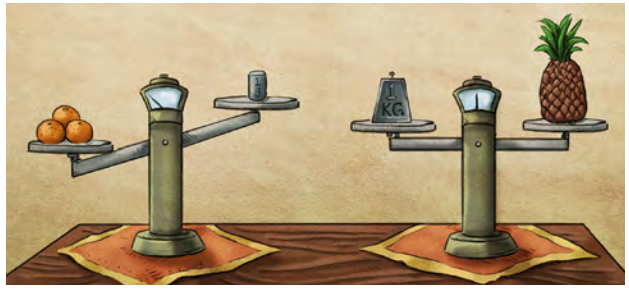
REVIEW & ACTIVITIES

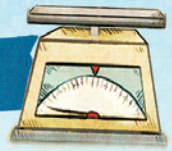
Circle the scale that is balanced with the same weight on both sides.



Fill in the blank.

_____ grams = 1 kilogram

Fun Finds



Look around you and find 2 items you would measure in kilograms and 2 items you would measure in grams. Write or draw the items in the correct columns.

kg	g

Complete the problems. Multiply the bottom number by the digit in the ones place of the top number. Then multiply the bottom number by the digit in the tens place of the top number.

$$\begin{array}{r} 62 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 51 \\ \times\ 4 \\ \hline \end{array}$$

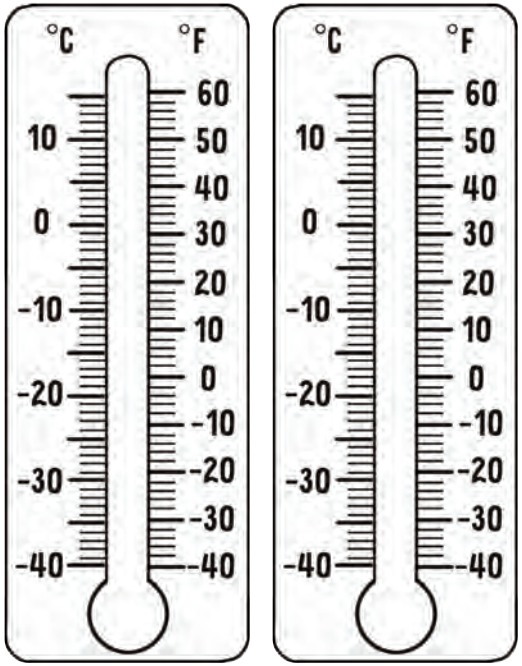
$$\begin{array}{r} 32 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} 81 \\ \times\ 3 \\ \hline \end{array}$$

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete the problems in this section.

$$\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times\ 7 \\ \hline \end{array}$$

Shade the thermometers to show the correct temperatures in degrees Celsius and Fahrenheit.



−25 °C
−13 °F

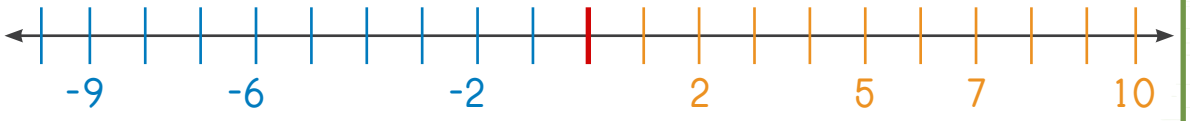
−35 °C
−31 °F

Fill in the blanks.

_____ ounces = 1 pound

_____ pounds = 1 ton

Fill in the missing numbers on the number line. Start by writing a 0 under the red tick mark.



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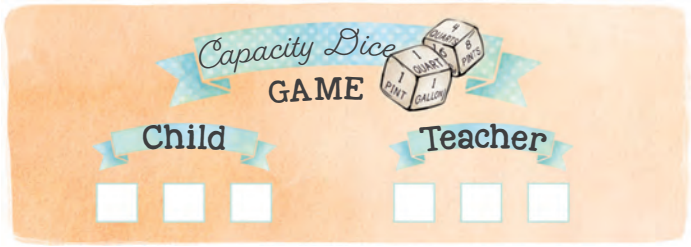
Lesson 71

VOLUME: PART 1

Play the "Capacity Dice Game." Refer to page ix for the instructions.

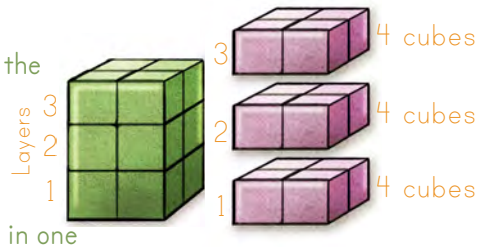


Time

Read the time on each clock in two different ways. (For example, 2:30 could be read as "two-thirty" or "half past two.")

Read to the child: ***Volume*** is the amount of space an object takes up, or the number of cubic units an object contains. For cube- or rectangular prism-shaped objects, follow these steps to find the volume.

Step 1: Imagine the figure separated into individual layers. Determine the number of cubes in one layer.

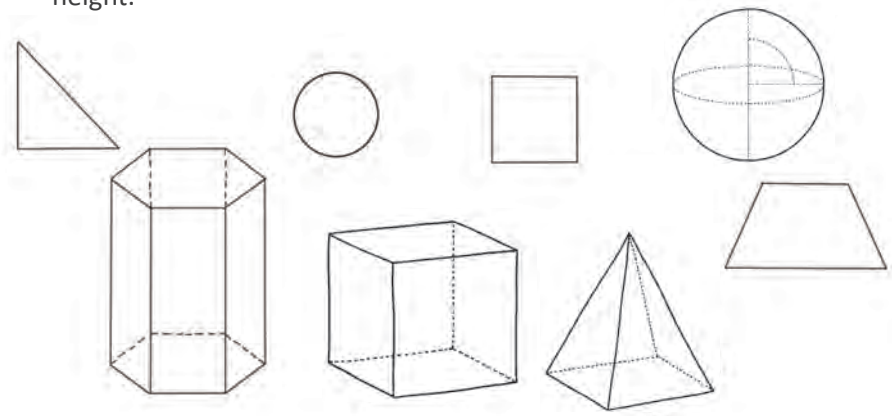


Step 2: Multiply the number of cubes in one layer by the number of layers.

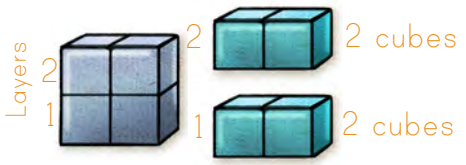
4 cubes per layer × 3 layers = 12 cubes

Volume is used in many situations, such as calculating the amount of space in a popcorn box or the number of tissues that can fit in a tissue box. Volume is measured using cubic units. Can you see an object in this room that could be measured using cubes?

Read to the child: Volume is used to measure the space inside 3D (three-dimensional) shapes. A 3D shape is one that takes up space and has length, width, and height. In this course you have practiced measuring the length of a line and finding the area of a surface. Area is the number of square units that cover the surface of a 2D (two-dimensional) shape. Look at the shapes below and circle the ones that represent 3D shapes, meaning they have length, width, and height.



Let's find the volume of the figure to the right. Imagine the figure separated into two layers. There are 2 cubes in each layer. There are 2 layers. Multiply the number of cubes in each layer by the number of layers. The volume is 4 cubic units.



2 cubes per layer × 2 layers = 4 cubes

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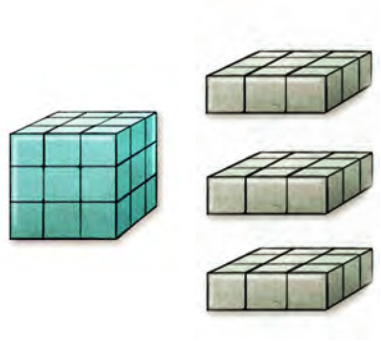
Let's look at another example. Take a close look at the figure. Imagine the prism broken into separate layers. How many cubes are in each layer? Write that number in the first blank. How many layers are there? Write that number in the second blank. Multiply to find the volume. Write the answer in the last blank.



___ cubes per layer × ___ layers = ___ cubes

Find the volume of each figure below. Remember to first visualize the figure in separate layers. Then multiply the number of cubes in each layer by the number of layers.

___ cubes per layer

× ___ layers

___ cubes

___ cubes per layer

× ___ layers

___ cubes

___ cubes per layer

× ___ layers

___ cubes

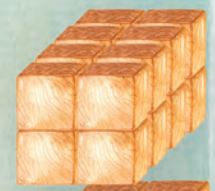
LESSON PRACTICE

BUILDING BLOCKS

Kiara built the following prisms out of cube-shaped blocks. Draw a line from each description to the correct model. Then multiply to find the volume. Lastly, answer the questions below.

12 cubes × 1 layer = ___ cubes per layer

A



8 cubes × 2 layers = ___ cubes per layer

B

5 cubes × 2 layers = ___ cubes per layer

C

4 cubes × 2 layers = ___ cubes per layer

D

Which figure contains the most cubes?

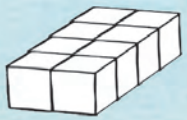
A B C D

Which figure contains the fewest number of cubes?

A B C D

Find the volume of the figure below. Remember to first visualize the figure in separate layers. Then multiply the number of cubes in each layer by the number of layers.

___ cubes per layer × ___ layers = ___ cubes



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REVIEW & ACTIVITIES

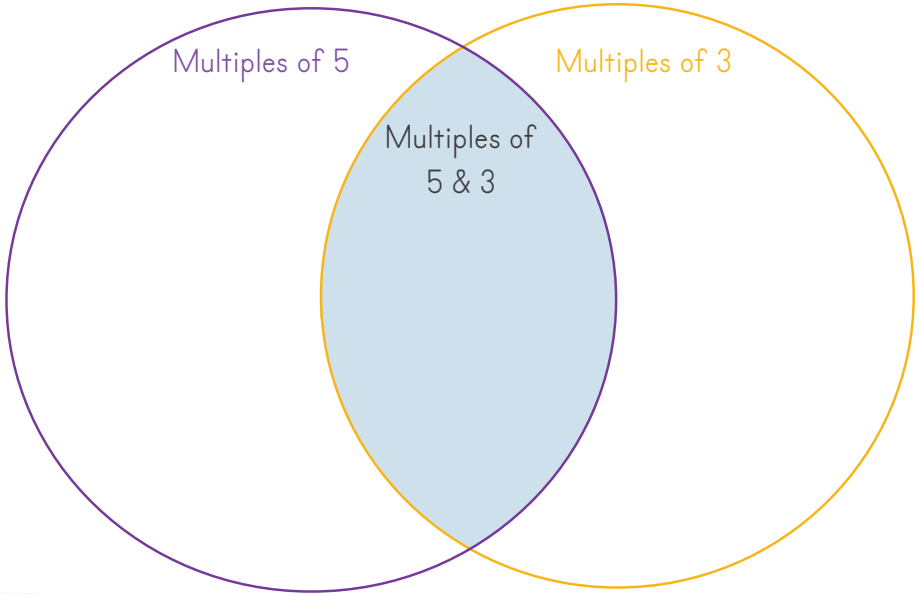
Complete the problems. First, multiply the bottom number by the digit in the ones place of the top number. Then multiply the bottom number by the digit in the tens place of the top number.

$$\begin{array}{r} 52 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 41 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 63 \\ \times\ 2 \\ \hline \end{array} \qquad \begin{array}{r} 70 \\ \times\ 6 \\ \hline \end{array}$$

Write the multiples of 5 from 5 to 35. Write the multiples of 3 from 3 to 33. Circle the numbers that appear in both lists. Then add the numbers to each correct part of the Venn diagram below.

Multiples of 5:

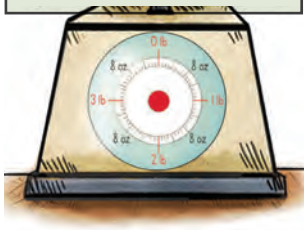
Multiples of 3:



ABBREVIATIONS

gram: ____

kilogram: ____



Fill in the blank.

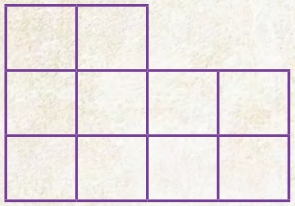
_____ grams = 1 kilogram

Write the weight of the potatoes in kg.

_____ kg

_____ kg

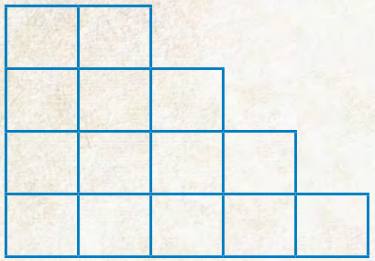
Write the area in square units for each image. Remember that 2 halves make a whole, so 2 half squares are 1 square unit.



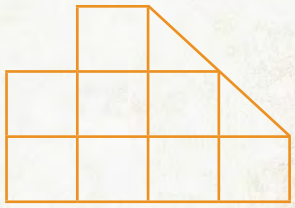
Area: _____ square units

Whole squares: _____ Half squares: _____

Area: _____ square units



Area: _____ square units



Whole squares: _____ Half squares: _____

Area: _____ square units

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Lesson 72

MULTIPLICATION: TWO-DIGIT BY ONE-DIGIT NUMBERS WITH REGROUPING

Place Value

You can add or subtract 10 from any number by changing the digit in the tens place. Say the answers aloud.

387 + 10 = 142 + 10 = 264 - 10 = 671 - 10 =

Skip Counting

- Skip count by 9s from 9 to 99.
- Skip count by 90s from 90 to 900.

Read to the child: Let's learn about regrouping in multiplication. Point to the multiplication problem below: 16 × 4. Start by multiplying the bottom digit by the digit in the ones place above. Point to the ones column. What is 4 × 6? Now look at the chart for the number 24. We have 2 tens and 4 ones. We cannot write the 2 tens in the ones place.

Tens	Ones
1	6
×	4

24

Tens	Ones
2	4

We carry the 2 tens to the tens column and write the 4 ones in the ones place of the answer, as shown in the blue boxes.

Next, we multiply the bottom digit with the digit in the tens place above: 4 × 1 = 4. But we don't write anything yet. We need to add the 2 tens that we carried. 4 + 2 = 6. Now write 6 in the tens place below the line. The final answer is 64.

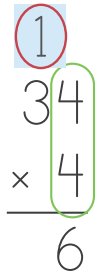
Tens	Ones
2	
1	6
×	4
6	4

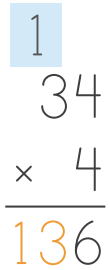
Read to the child: Let's go over three steps for multiplying with regrouping. As I read each step, point to the digits in the problem that I'm talking about. To begin, write the 2-digit number on top of the 1-digit number.

Step 1
Multiply the bottom number by the digit in the ones place above: 4 × 4 = 16. Carry the 1 ten to the tens column. Write the 6 in the ones place in the answer.

Step 2
Multiply the bottom number by the digit in the tens place above: 4 × 3 = 12, but don't write 12 anywhere; just remember 12.

Step 3
Add the number that you carried to the tens place to the answer from step 2: 12 + 1 = 13. Write the answer below the line.





Read to the child: Let's go through the steps with another problem. This time as I read the problem, you write anything that should be written.

Step 1
Multiply the bottom number by the digit in the ones place above. Carry the 2 tens to the tens column. Write the 4 in the ones place in the answer.

Step 2
Multiply the bottom number by the digit in the tens place above. (4 × 2 = 8) Don't write 8 anywhere. Just remember 8.

Step 3
Add the number that was carried (2) to the product from step 2. (8 + 2 = 10) Write the answer below the line.

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○ Read to the child: Let's go through the steps with another problem. As I read the problem, you write anything that should be written.

Step 1
Multiply the bottom number by the digit in the ones place above. Remember to regroup.

Step 2
Multiply the bottom number by the digit in the tens place above. Remember this product.

Step 3
Add the product from step 2 and the number that you carried from step 1. Write the sum below the line.

$$\begin{array}{r} \square \\ 58 \\ \times\ 4 \\ \hline \end{array}$$

○ Read to the child: Let's do one more problem with guided steps. Once again, as I read the problem, you write anything that should be written.

Step 1
Multiply the bottom number by the digit in the ones place above. Remember to regroup.

Step 2
Multiply the bottom number by the digit in the tens place above. Remember this product.

Step 3
Add the product from step 2 and the number that you carried from step 1. Write the sum below the line.

$$\begin{array}{r} \square \\ 29 \\ \times\ 5 \\ \hline \end{array}$$

○ Have the child complete the problems below following the same steps.

$$\begin{array}{r} \square \\ 23 \\ \times\ 4 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ 18 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ 25 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ 37 \\ \times\ 3 \\ \hline \end{array}$$

Optional Video Lesson

For additional practice, watch the optional video lesson on goodandbeautiful.com/math3 titled "Multiplication with Regrouping." The section below is used during the video.

$$\begin{array}{r} \square \\ 26 \\ \times\ 3 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ 48 \\ \times\ 7 \\ \hline \end{array}$$

$$\begin{array}{r} \square \\ 73 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} \square \\ 34 \\ \times\ 6 \\ \hline \end{array}$$

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What Animals Live in India?

LESSON PRACTICE

Complete each problem. Then fill in the circle by each problem that has an even number as the answer. The even-numbered answers are next to the animals that live in India. The odd-numbered answers are next to the animals that do not live in India.

Bengal Tiger

□
46
× 6

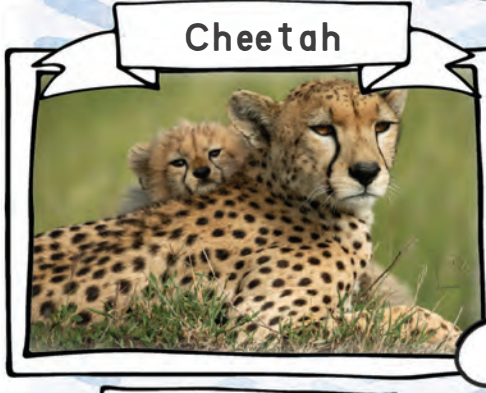
Malabar Giant Squirrel

□
84
× 8

Giraffe

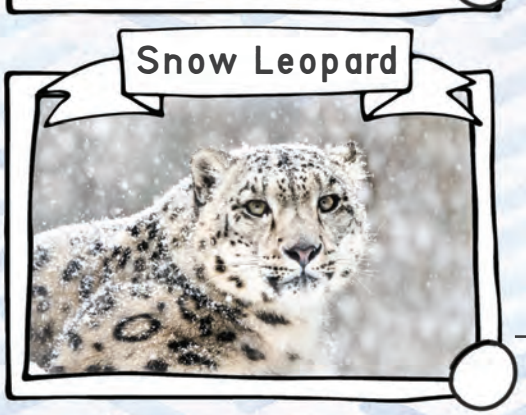
□
47
× 3

Cheetah



□
25
× 3

Snow Leopard



□
34
× 7

Himalayan Blue Sheep

□
48
× 5

Lion-Tailed Macaque

□
46
× 4

Greater Flamingo

□
59
× 5

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Money Time!

For each total amount of money, write the number of each coin you would need to equal the amount by using the fewest number of coins possible. The first one is completed as an example.

87¢ — 3 | 1 | 0 | 2

$1.26 — | | | |

$2.66 — | | | |

97¢ — | | | |

For each total amount of money, write the number of each bill you would need to equal the amount by using the least number of bills possible.

$525 — $100 | $20 | $10 | $5 | | | |

$380 — $100 | $20 | $10 | $5 | | | |

$185 — $100 | $20 | $10 | $5 | | | |

$495 — $100 | $20 | $10 | $5 | | | |

Write and complete a vertical multiplication problem to answer each question. The first one is completed for you as an example.

There are 4 quarters in a dollar. How many quarters are in 5 dollars?

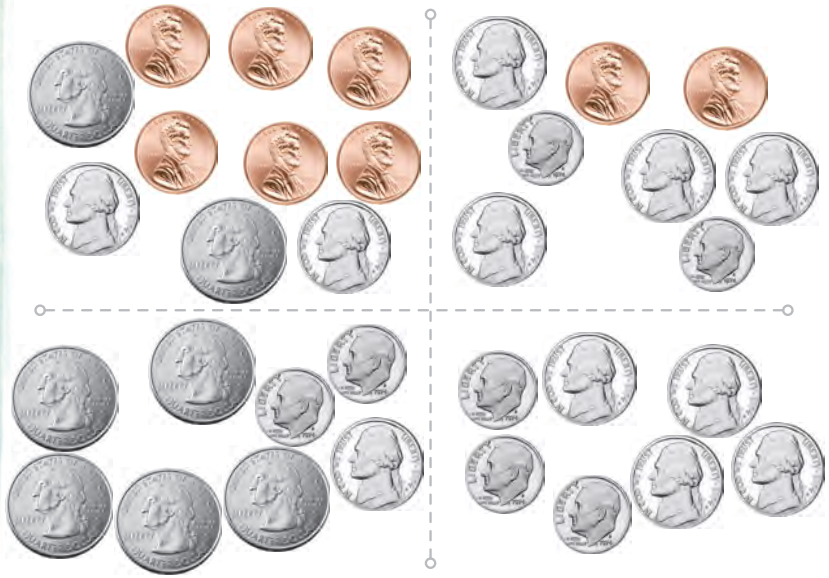
$$\begin{array}{r} 4 \\ \times\ 5 \\ \hline 20 \end{array}$$

There are 10 dimes in a dollar. How many dimes are in 4 dollars? (Write the larger number on top.)

There are 20 nickels in a dollar. How many nickels are in 5 dollars? (Write the larger number on top.)

There are 4 quarters in a dollar. How many quarters are in 6 dollars?

Draw a line to split each group of coins into two groups that have the same value.



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Lesson 73

MULTIPLICATION: STORY PROBLEMS

Mental Math

- If you had a bouquet of 1 dozen flowers, how many flowers would you have? How many flowers are in 2 dozen?
- How many flowers are in a bouquet of a half dozen?

Skip Counting

- Skip count by 6s from 6 to 66.
- Skip count by 60s from 60 to 600.

Read to the child: Today, we will use flowers that are native to India to learn how to complete multiplication story problems. Some story problems tell you the number of equal groups and the amount in each and require multiplication to find the total. Let's look at an example.

Subha has 3 vases. She wants to put 8 lotus flowers in each vase. How many total lotus flowers will she need? This story problem requires us to find 3 groups of 8. We could add 8 plus 8 plus 8; however, multiplication is faster.

$$\underset{\text{vase 1}}{8} + \underset{\text{vase 2}}{8} + \underset{\text{vase 3}}{8} = \underset{\substack{\text{number}\\\text{of vases}}}{3} \times \underset{\substack{\text{number of}\\\text{flowers in}\\\text{each vase}}}{8}$$

What is 3 times 8? Subha will need a total of 24 lotus flowers.

Continue the lesson with the child on the next page before playing the Flower Path game on this page.

Continued on the next page ⟶

Flower Path

Place the game pawns on "START." The first player completes a story problem. If the answer is correct, then the player rolls the dice and moves his or her game pawn the number of spaces shown on the dice. The next player follows the same steps. The first player to land on "FINISH" is the winner.

The flower grows 2 mm each day. How many millimeters did it grow in 4 days?

There are 10 flowers. Each flower has 2 leaves on the stem. How many total leaves are there?

You plant 3 flowers in each pot. There are 5 flower pots. How many total flowers do you plant?

There are 7 flowers. Each flower has 8 petals. How many total petals are there?

There are 5 bouquets of flowers. Each bouquet has 6 flowers. How many total flowers are there?

There are 4 rows of flowers in the flower bed. Each row has 10 flowers. How many total flowers are in the flower bed?

You have 2 vases. You want to put 9 flowers in each vase. How many total flowers do you need?

There are 6 kinds of flowers. There are 8 of each kind. How many total flowers are there?

There are 6 flower beds. Each one has 7 rows of flowers. How many total rows of flowers are there?

There are 7 honeybees drinking nectar from the flowers. They each visit 7 different flowers. How many total flowers do they visit?

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Before we play the game, we'll practice with two more story problems. Raj has 4 vases. He wants to put 7 dahlia flowers in each vase. How many total dahlia flowers will he need?

This story problem requires us to find 4 groups of 7. Again, we could add 7 four times, but multiplying is much faster.

$$7 + 7 + 7 + 7 = 4 \times 7$$

vase 1, vase 2, vase 3, vase 4 = number of vases × number of flowers in each vase

What is 4 times 7? Raj will need a total of 28 dahlia flowers.

Try this problem on your own. Kiara has 2 vases. She wants to put 10 hibiscus flowers in each vase. How many total hibiscus flowers will she need? Fill in the blanks below, and then find the product.

____ (number of vases) × ____ (number of flowers in each vase) = ____ (total flowers)

○ Read to the child: Now we're ready to play the game. Take the 10-sided dice and two game pawns from the math box and turn back to the previous page.

LESSON PRACTICE

RIDDLE Time

Circle the story problem that correctly matches the multiplication problem. Remember to look for a story problem that talks about equal groups.

3 × 4

There were 3 shrubs. Kiara picked 4 flowers from each shrub. How many flowers did Kiara pick in all?

Kiara picked 3 flowers from one shrub and 4 from another shrub. How many flowers did Kiara pick in all?

2 × 5

Raj picked 5 roses and gave 2 to his mom. How many roses does Raj have left?

Raj noticed there were 2 vases on the table with 5 roses in each vase. How many total roses were there?

Complete each story problem. Then place the letters in the blanks to answer the riddle. **What kind of flowers grow on your face?**

P There were 8 centerpieces with 5 flowers in each one. How many total flowers were there?

U There were 7 vases. Each vase had 7 flowers. How many total flowers were there?

L There were 4 rows of flowers. Each row had 6 flowers. How many total flowers were there?

S There are 3 vases. You want to put 9 flowers in each vase. How many flowers do you need?

I There are 10 flowers. Each flower has 6 petals. How many total petals are there?

T You pick 5 flowers from each shrub. There are 2 shrubs. How many flowers do you pick?

10 49 24 60 40 27

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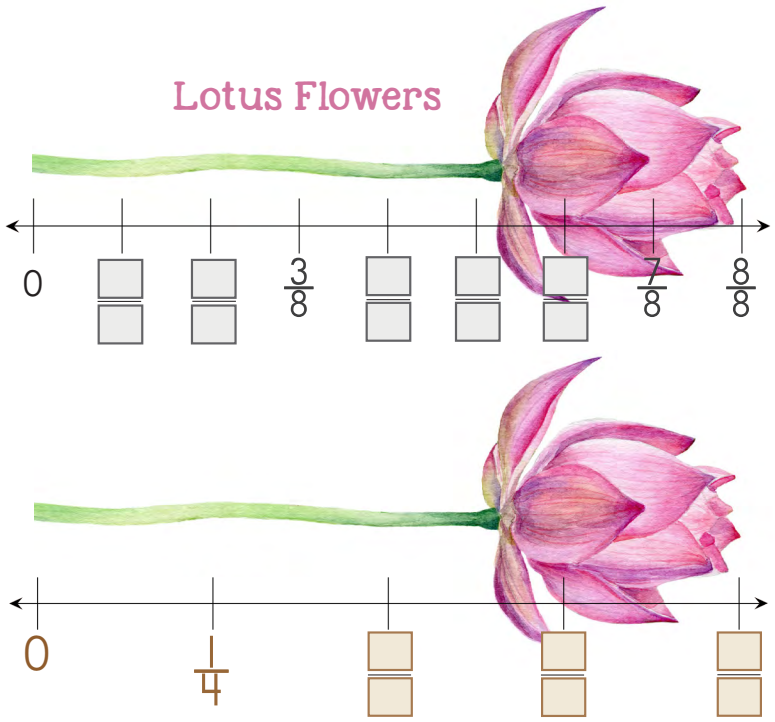
REVIEW & ACTIVITIES

Fill in the missing fractions on the number lines below.

Lotus Flowers



Use the number lines below the lotus flowers to compare the following fractions by writing either <, >, or = in the circles.

$\frac{2}{4} \bigcirc \frac{4}{8}$ $\frac{1}{8} \bigcirc \frac{5}{8}$ $\frac{6}{8} \bigcirc \frac{1}{4}$ $\frac{3}{4} \bigcirc \frac{6}{8}$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems to review Set A.

3 × 3 = ____ 5 × 3 = ____ 8 × 8 = ____ 5 × 5 = ____

6 × 6 = ____ 8 × 4 = ____ 3 × 4 = ____ 9 × 9 = ____

BUILDING BLOCKS

Kiara built the following figures out of cube-shaped blocks. Draw a line from each description to the correct model. Then multiply to find the volume. Lastly, answer the questions below.

4 cubes per layer × 1 layer = ___ cubes

9 cubes per layer × 3 layers = ___ cubes

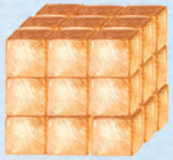
3 cubes per layer × 3 layers = ___ cubes

8 cubes per layer × 3 layers = ___ cubes

A

B

C



D

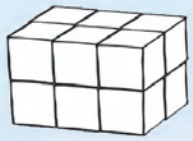
Which figure contains the most cubes?

A B C D

Which figure contains the fewest number of cubes?

A B C D

Find the volume of the figure below. Remember to first visualize the figure in separate layers. Then multiply the number of cubes in each layer by the number of layers.



___ cubes per layer × ___ layers = ___ cubes

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Lesson 74

ADDING MONEY WITH THREE ADDENDS

Mental Math

Add or subtract multiples of 10.

367 - 30 = 86 + 40 = 275 - 20 =

Skip Counting

- Skip count by 4s from 4 to 44.
- Skip count by 40s from 40 to 440.

Read to the child: Today, we are going to practice adding money with three addends. ***Addends*** are the numbers being added together.

When you are adding multiple amounts of money, it is important to keep all the decimal points and place values lined up. This way the dollars and cents are separated, and you can easily see which digits should be added together.

Complete the problem to the right. There are three numbers to add together, so this is a great way to practice some of the mental math strategies you have learned. Start in the green column. Do you notice two digits that add to 10? 6 + 4 = 10. Now add the 2. Write the answer and remember to carry the 1. In the orange column, you see doubles. 9 + 9 =18. Add the carried 1 and you have 19. In the blue column, do you see two digits that add to 10? Add these first, and then add the remaining numbers. The decimal point should line up in your answer, as shown.

		□	□	
	$	5	. 0	4
	$	2	. 9	2
+	$	8	. 9	6
$			.	

Raj, Subha, and Kiara's grandmother is earning money to buy gifts for each of her three grandchildren for their upcoming birthdays. Using Grandmother's notes, write each day's total in the boxes below. Use your knowledge and strategies to add the three amounts and write the answer in the total box. Be sure to add the decimal place and dollar sign to the total.

Earned

Day 1: $13.32

Day 2: $12.98

Day 3: $11.04

	$.	Day 1
	$.	Day 2
+	$.	Day 3
		Total

Grandmother took her money to the market to shop for gifts. She chose the one in the green circle for Subha, the one in the orange box for Raj, and the one in the blue hexagon for Kiara. How much money did she pay for the gifts? Follow the instructions on the next page to find the answer.

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Write the cost of each item in the box with the corresponding color, being sure to line up the decimal points and place values. Starting in the far right, add each column and write the total amount of money Grandmother spent on the birthday gifts in the purple box.

$.
$.
+ $.
.

LESSON PRACTICE

Choose three items you would be interested in purchasing from the shelves on the previous page. Write their prices in the box and add them to find the total cost.

$.
$.
+ $.

Estimate which three items add up to less than $20. Add them in the box below. If your total is more than $20, erase the most expensive item, and try again.

$.
$.
+ $.

Roll the DICE and FIND the Price

Take the 10-sided and 6-sided dice from the math box. Roll both dice and write the numbers rolled in the blank spaces for each problem. You can decide which blank to write each number in. Then add the amounts to find the total. If you roll a 10, write a 0.

	$	1	.		
	$	9	.		
+	$	5	.		
$			.		

	$	4	.		
	$	3	.		
+	$	7	.		
$			.		

	$	7	.		
	$	6	.		
+	$	2	.		
$			.		

	$	1	.		
	$	8	.		
+	$	9	.		
$			.		

Find the total cost of the lamps.

$.
$.
+ $.

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REVIEW & ACTIVITIES

Fast Animals!

What is the top speed of the animals below? Complete each problem, and the answer will be that animal's top speed in miles per hour.

14 × 3 = ☐

25 × 3 = ☐

16 × 3 = ☐

13 × 3 = ☐

Write the factors for each number.

9

FACTORS

×

×

18

FACTORS

×

×

×

MULTIPLES MAGNET

This magnet attracts multiples of 6. Circle all the multiples of 6 below (which are numbers created by multiplying 6 by another number).

6 1 18 12 15

20 7 22 30 4

21 11 3 13 9

19 24 2 5 4

Volume

___ cubes per layer × ___ layers = ___ cubes

___ cubes per layer × ___ layers = ___ cubes

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then write and complete a multiplication problem for each story.

Kiara found 8 raisins in each cookie. She had 3 cookies. How many raisins did she have in total?

Raj planted 6 flower seeds in each pot. He had 3 pots. How many seeds did he plant altogether?

Kiara painted 8 roses on each of the 4 walls of her bedroom. How many roses did she paint in total?

Raj practiced multiplication facts 7 times a day for 5 days in a row. How many times did he practice in all?

Kiara picked 8 tomatoes every day for 6 days. How many tomatoes did she pick altogether?

Raj wrote 7 poems that had 6 lines each. How many lines did he write altogether?

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Lesson 75

MULTIPLICATION: MONEY

Place Value

- What is the value of the digit 3 in 1,380?
- What is the value of the digit 9 in the number 3,297?
- Which digit is in the hundred millions place in 872,395,461?
- Round 756 to the nearest hundred.

Skip Counting

- Skip count by 3s from 3 to 33.
- Skip count by 30s from 30 to 330.

○ Read to the child: Let's learn about multiplying money. We'll start with multiplying horizontally. For the problem below, multiply the numbers that are not 0 (7 × 2) and write the answer. Then count the 0s in the problem and write that many 0s after 14.

70¢ × 2 = _____¢

The next step is to convert 140¢ to dollars and cents. We know that 100¢ is equal to 1 dollar. Write a 1 in the dollar section of the answer. What is left over from 140¢ once 100¢ is changed to a dollar? Write this in the blank labeled "leftover cents" and on the cent section of the answer.

100¢ + ___¢ = $__.__
equal to $1 — leftover cents

○ Read to the child: Let's practice with a couple more problems. First, multiply the digits that are not 0. Then write the number of 0s from the problem at the end of the product. Then convert it from cents to dollars and cents.

50¢ × 3 = _____¢

80¢ × 5 = _____¢

100¢ + ___¢ = $__.__
equal to $1 — leftover cents

400¢ + ___¢ = $__.__
equal to $4 — leftover cents

○ Read to the child: Now complete the following sets of problems by first writing the total number of cents and then writing the total amount of money using dollars and cents.

60¢ × 6 = _____¢ $_____

80¢ × 4 = _____¢ $_____

○ Read to the child: Now let's try it vertically using fewer steps. If you wanted to buy 3 items that each cost 40 cents, you could figure out how much it would cost by writing this problem. Point to the problem to the right. Complete the problem and write the answer in the green box. Now, let's change the answer to dollars and cents. How many cents are in a dollar? There are 100. Write the answer again in the orange box, but count over two place values from right to left and write the decimal point between 1 and 2. What is the answer in dollars and cents?

40¢
× 3
¢
$

Now complete these problems. First find the total number of cents, and then convert the cents to dollars and cents. The decimal point is written two place values from the right.

90¢	45¢	36¢
× 3	× 5	× 6
¢	¢	¢

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LESSON PRACTICE

Multiplying at the Market

These are some items found at the market that Raj's family often visits. Find the cost of each item by creating and completing a multiplication problem in each blank box. Then convert the answer to dollars and cents.

90¢ each

2 coconuts: $_____._____

20¢ each

6 bananas: $_____._____

70¢ each

8 mangos: $_____._____

80¢ each

3 pineapples: $_____._____

REVIEW & ACTIVITIES

Add the fractions below. Remember to add the numerator. The denominator stays the same.

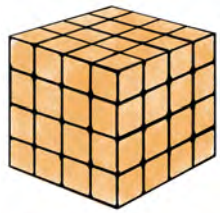
numerator

$\frac{1}{4} + \frac{2}{4} = \frac{\quad}{\quad}$ denominator

$\frac{3}{7} + \frac{2}{7} = \frac{\quad}{\quad}$

$\frac{2}{6} + \frac{2}{6} = \frac{\quad}{\quad}$

Write and complete a multiplication problem (number of cubes per layer × number of layers) to determine the volume of each shape.



In each dark orange box, write the amounts given in the light orange box. Then add the three amounts together. Include a dollar sign and decimal point in each answer.

- 37 dollars and 40 cents
- 40 dollars and 15 cents
- 17 dollars and 22 cents

$.
$.
+ $.

- 7 dollars and 11 cents
- 4 dollars and 23 cents
- 6 dollars and 44 cents

$.
$.
+ $.

- 12 dollars and 30 cents
- 6 dollars and 25 cents
- 20 dollars and 33 cents

$.
$.
+ $.

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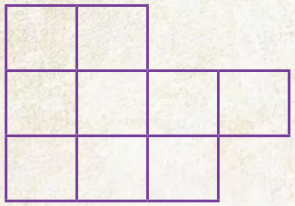
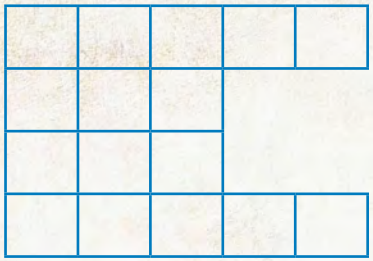
Write the area in square units for each image.



Area: ____ square units



Area: ____ square units

✧ Multiplication Fact Quiz ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then have your parent or teacher quiz you on the Set C facts by completing the problems below. Circle any you miss and spend extra time on those facts during your practice time.

9 × 6	8 × 9	6 × 5	7 × 7	9 × 8	7 × 6
5 × 6	7 × 5	6 × 3	8 × 6	6 × 7	7 × 9	8 × 3
6 × 9	3 × 8	9 × 7	6 × 8	3 × 6	5 × 7

Complete the problems using the subtraction across zeros strategy.

5,000 − 3,429

8,000 − 7,354

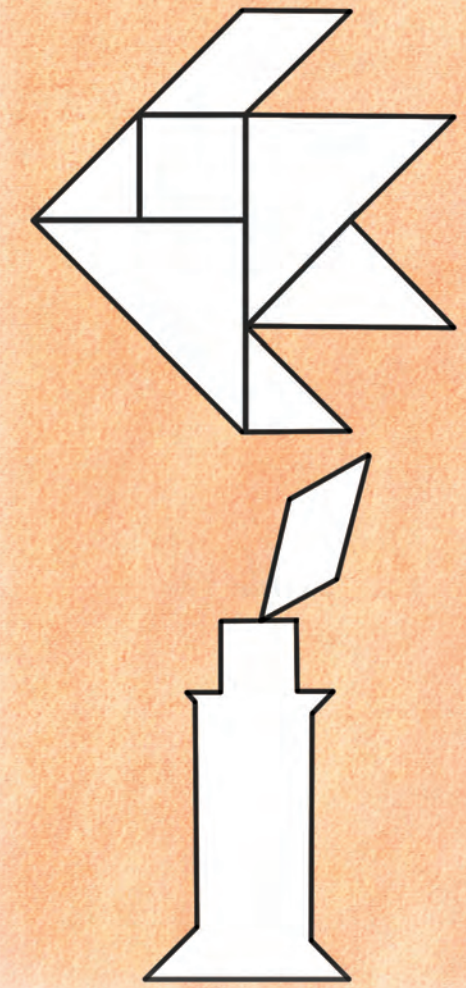
6,054 − 2,361

7,506 − 3,157

4,200 − 1,349

Tangram Logic

Use all the orange tangram pieces from the math box to create these shapes.



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Lesson 76

PERIMETER: PART 2

Mental Math

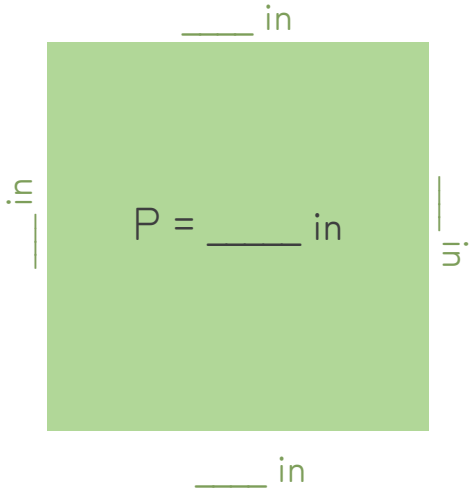
- You can add or subtract 100 from a number by changing the digit in the hundreds place. Complete the problems:

1,459 + 100 =	2,746 + 100 =	8,738 + 100 =
6,927 - 100 =	4,276 - 100 =	7,153 - 100 =

Skip Counting

- Skip count by 100s from 150 to 950.

○ Read to the child: Do you remember what perimeter is? [the distance around a 2D shape] Today, we will continue our discussion about perimeter.



You can find the perimeter of any shape with three or more sides by adding the length of each side. Using the measuring tape from the math box, measure each side of the green square, write the length of each side, and write the perimeter in inches. We will use the letter P to stand for perimeter.

Did you notice that each side of the square measures the exact same length? If you know the length of one side of a square, you can figure out the perimeter by adding the length of one side four times.

One sunny California afternoon, 10-year-old Rita and her 6-year-old brother, Warren, decided to do their math work in their tree fort while their parents tended to the garden. Rita's assignment was to find the perimeter of things around her home. The side of this square seed packet is 8 cm long. What is the perimeter of the seed packet?

8 cm

8 cm + _____ + _____ + _____ = _____

A rectangle has two long sides that are equal in length as well as two short sides that are equal in length. If you know the length and width of a rectangle, you can find the perimeter.

Fill in the missing length and width of the vegetable box, and then calculate the perimeter.

20 in + 15 in + _____ + _____ = _____

Using the image on the next page, help Rita find the perimeter of the items in her yard by adding the lengths of the sides. Write your answers in the boxes below and remember to include the units in your answers.

- Tree swing:
- Sandbox (square):
- Dog house:
- Firepit (hexagon): all sides equal
- Window:
- Back door:

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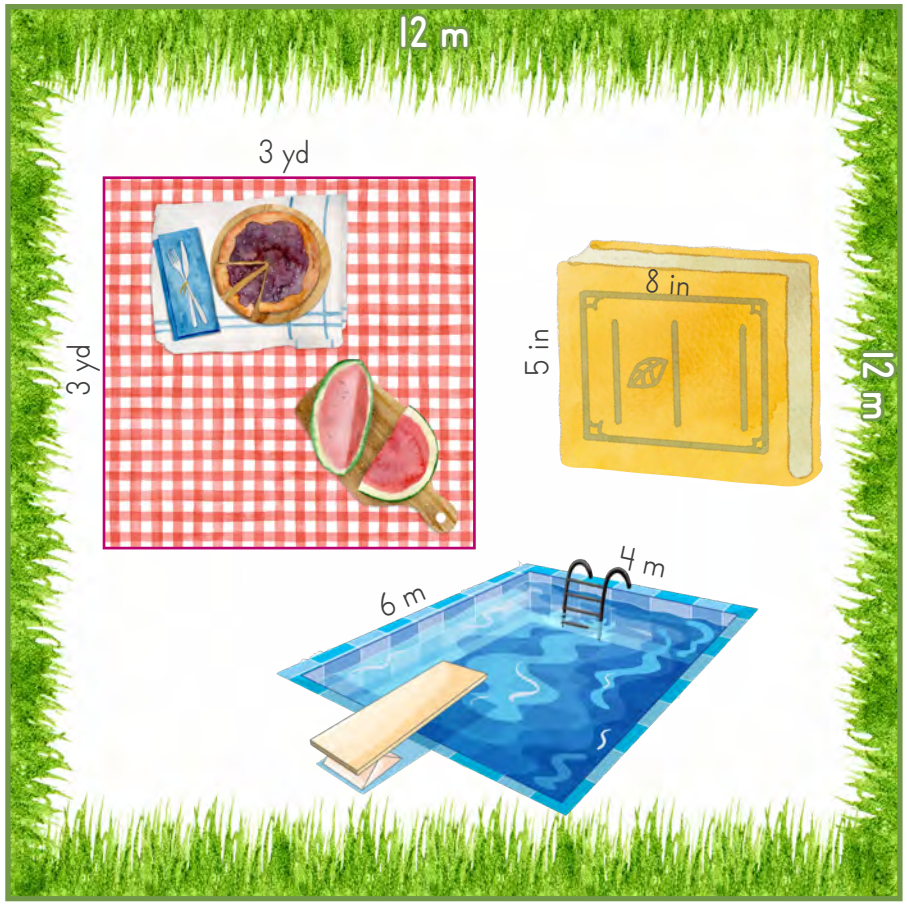
LESSON PRACTICE

Rita's big brother, Tom, started mowing their lawn by cutting the grass around the perimeter of the yard. Without measuring, find the perimeter of the yard, and then find the perimeter of each shape based on the measurements given. Write the answers in the box below, and include the units of measurement.



PERIMETER

Grass: _____

Picnic blanket: _____

Book: _____

Pool: _____

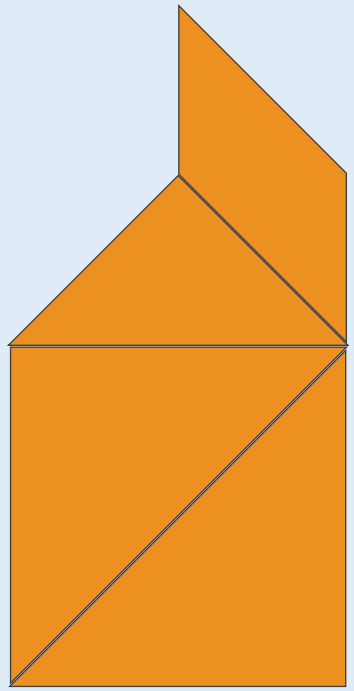
Using the centimeter side of the measuring tape, measure one side of the square and two sides of the rectangles. Record the measurements, and then add to find the perimeter.

P = _____ cm

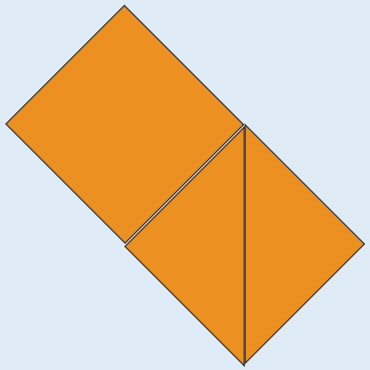
P = _____ cm

P = _____ cm

Take the tangram pieces from the math box. Assemble them as shown below. Using the measuring tape, measure each side of the perimeter to the nearest centimeter.



Perimeter is about _____ cm.



Perimeter is about _____ cm.

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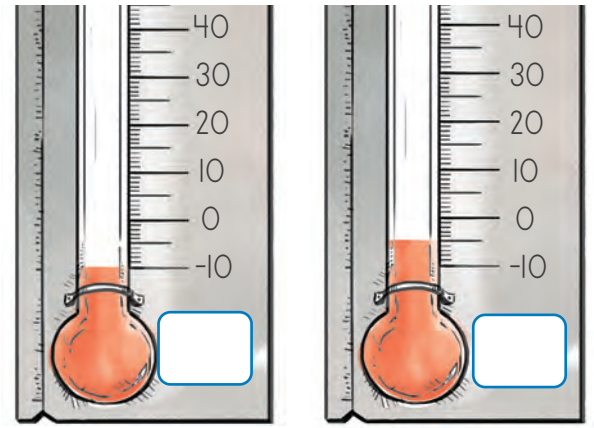
REVIEW & ACTIVITIES

Write the temperature that each thermometer shows and include degrees Celsius in the answer.

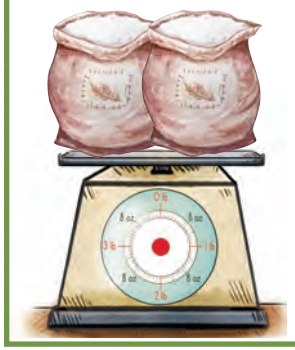


Fill in the missing numbers on the number line. Start by writing a 0 under the red tick mark.

Complete the exercises.

There are 16 ounces in a pound. Rita has 2 bones for her dog, Duke. One bone weighs 8 ounces, and the other bone weighs 9 ounces. How much do the bones weigh altogether?

____ lb ____ oz



Rita has 2 bags of flour that weigh 6 kilograms each. How much flour does she have altogether?

_____ kg

Rita's family found a nest of eggs in their yard. In the morning, $\frac{1}{5}$ of the eggs hatched. Right after lunch, $\frac{2}{5}$ of the eggs hatched. Write and complete an addition problem with fractions to show the fraction of the total eggs that hatched.

Add or subtract.

$$\begin{array}{r} \$5{,}000 \\ \$3{,}482 \\ +\ \$2{,}756 \\ \hline \end{array}$$

$$\begin{array}{r} \$70.00 \\ -\$23.29 \\ \hline \end{array}$$

Complete the following sets of problems by first writing the total number of cents and then writing the total amount of money using dollars and cents.

50¢ × 6 = _____¢

$_____

40¢ × 8 = _____¢

$_____

30¢ × 8 = _____¢

$_____

Write the expanded-form number in standard form in each green box and complete each problem.

5,000 + 10 + 3

$$\begin{array}{r} \square, \\ +\ 1{,}274 \\ \hline \end{array}$$

4,000 + 300 + 5

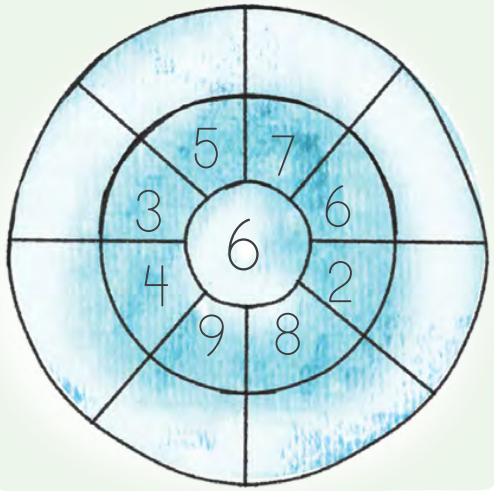
$$\begin{array}{r} \square, \\ +\ 3{,}178 \\ \hline \end{array}$$

Order the fractions from least to greatest.

$\frac{2}{5}$ $\frac{5}{5}$ $\frac{4}{5}$ _____ _____ _____

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



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Lesson 77

USING MULTIPLICATION TO FIND AREA

Mental Math

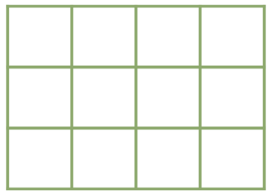
- Use the plus 9 strategy. Add 1 to the number that ends in 9, add the numbers, and then subtract 1 from the answer.

  19 + 22 14 + 29 39 + 51 49 + 17

- Add these sets of 3 numbers and say the answers aloud. Look for numbers that add up to 10 and add those first. Then add the remaining number to 10.

  2 + 7 + 3 = 4 + 6 + 5 = 8 + 9 + 1 =

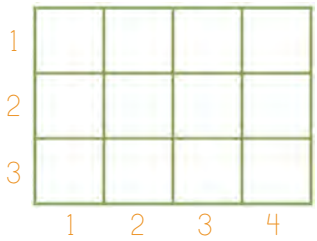
○ Read to the child: You learned from a previous lesson that area is the space inside a 2D shape. It is the number of square units required to completely cover a shape. Fill in the box with the number of square units used to cover this rectangle.



☐ square units

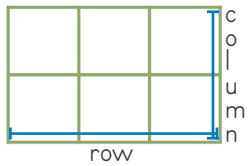
The rectangle below is shown as an array. Multiplying the number of rows by the number of columns is a faster way to find the number of squares in an array than counting each square individually.

There are 3 rows of squares. Write 3 in the first box of the equation. There are 4 columns of squares. Write 4 in the second box of the equation. Multiply to find the total number of square units.



☐ × ☐ = ☐ square units

Let's look at another example. Count the number of rows. Write this number in the first box. Count the number of columns. Write this number in the second box. Multiply to find the area.



☐ × ☐ = ☐

Continue practicing this skill by finding the area assigned to the radishes, squash, and carrots found in Rita's family vegetable stand. Multiply the number of rows by the number of columns. Label each answer with square units.

radishes ☐ units × ☐ units = ☐ _____

squash ☐ units × ☐ units = ☐ _____

carrots ☐ units × ☐ units = ☐ _____

Take the array mat from the math box. Use a dry-erase marker to draw the following arrays. Find the area by multiplying the number of rows by the number of columns. Write the answers in the boxes.

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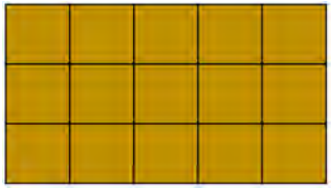
LESSON PRACTICE

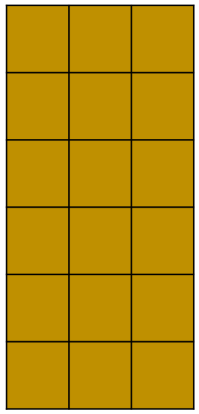
Designs for Duke Rita is considering different designs for Duke's new doghouse. Calculate the area of each design. Label the answer with square units. Circle the design that has the greatest area.

Design #1

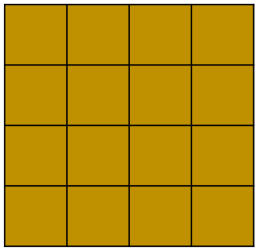


☐ units × ☐ units = ☐ _____

Design #2



Design #3



☐ units × ☐ units = ☐ _____

☐ units × ☐ units = ☐ _____

Order the areas of the designs from greatest to least.

_____ _____ _____

REVIEW & ACTIVITIES

Change!

Use a whiteboard to complete the two-step story problem and write the final answer in the box.

Warren spent $6.73 on nails and $21.22 on wood for a tree house. He paid for the items with $30.00. How much change did he receive?

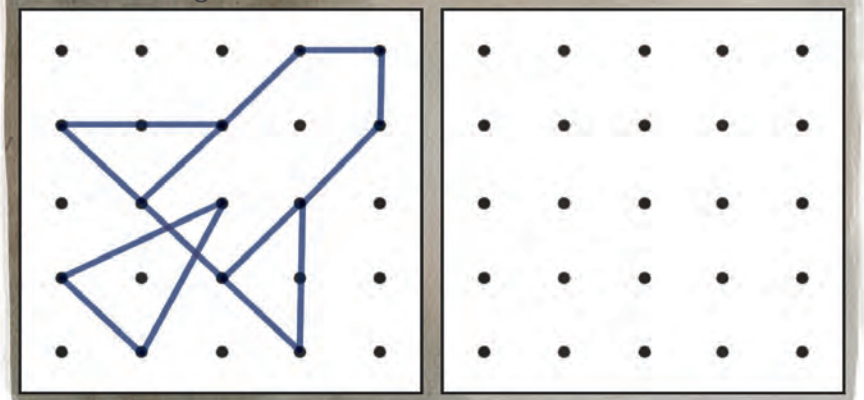
Complete the following sets of problems by first multiplying to find the total number of cents and then writing the total amount of money using dollars and cents.

70¢ × 7 = _____¢ $_____

90¢ × 6 = _____¢ $_____

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



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In 2020 about 7,780,310 tons of oranges were grown in California. Complete the exercises based on this number.

Write the number on the chart. Remember the commas.

Word Bank
million | hundred
thousand | eighty

Millions			Thousands					
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

7,780,310
tons of oranges

List the digit that is in each given place value.

Millions ☐

Hundred Thousands ☐

Ten Thousands ☐

Tens ☐

Write the number in words. (Write small.)

Hidden HALVES

Find and circle 5 hidden fractions that are equal to $\frac{1}{2}$.

$\frac{2}{3}$ $\frac{2}{4}$ $\frac{7}{9}$ $\frac{7}{7}$ $\frac{4}{8}$ $\frac{4}{9}$ $\frac{9}{9}$ $\frac{5}{10}$ $\frac{3}{9}$ $\frac{1}{5}$ $\frac{1}{2}$ $\frac{5}{9}$ $\frac{2}{4}$ $\frac{7}{10}$ $\frac{7}{8}$

Write the time Rita finished her reading practice each day. Include AM or PM in the box. Use a whiteboard if needed.

She started at 5 minutes after 2 in the afternoon and read for 22 minutes.

She started at quarter after 7 in the morning and read for 31 minutes.

She started at 10 past 8 in the evening and read for 37 minutes.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete these problems.

8 × 9	8 × 3	7 × 7	9 × 8	7 × 9
7 × 5	9 × 6	7 × 7	6 × 5	7 × 6

Fill in the bubble for the correct abbreviation.

ounces
○ in ○ oz ○ on

pounds
○ pd ○ ps ○ lb

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Lesson 78

ADDING AND SUBTRACTING MIXED NUMBERS WITH COMMON DENOMINATORS

Mental Math

- Complete these problems and answer aloud:

23 + 19 = 29 + 14 = 30 + 49 =

53 + 29 = 69 + 13 = 40 + 39 =

Skip Counting

- Skip count by 7s from 7 to 77.
- Skip count by 70s from 70 to 700.

Read to the child: There are two steps when adding and subtracting mixed numbers.

Step 1: Add (or subtract) the whole numbers.

$2\frac{1}{4} + 3\frac{1}{4} =$

2 plus 3 is 5

Step 2: Add (or subtract) the fractions. Remember to keep the common denominator.

$2\frac{1}{4} + 3\frac{1}{4} = 5\frac{2}{4}$

$\frac{1}{4}$ plus $\frac{1}{4}$ is $\frac{2}{4}$

Practice adding and subtracting the mixed numbers below. Add or subtract the whole numbers, and then add or subtract the fractions.

$2\frac{1}{4} + 3\frac{1}{4} =$ $\quad 8\frac{3}{5} - 1\frac{1}{5} =$

$4\frac{2}{7} + 2\frac{2}{7} =$ $\quad 3\frac{5}{6} - 2\frac{4}{6} =$

Tom and Rita are having fun helping at their family's roadside stand. Because different fruits ripen at different times, their roadside stand doesn't always have the same fruits. Today, they have peaches, blackberries, and strawberries.

Let's suppose Tom ate $2\frac{3}{8}$ baskets of raspberries and $1\frac{2}{8}$ baskets of strawberries. Add the mixed numbers to find out how much fruit he ate altogether.

$2\frac{3}{8} + 1\frac{2}{8} =$

Now subtract the mixed numbers to find how many more raspberries he ate than strawberries.

$2\frac{3}{8} - 1\frac{2}{8} =$

Tom sold $4\frac{1}{5}$ boxes of peaches before lunch and $3\frac{2}{5}$ boxes of peaches after lunch. Fill in the problem in the blank boxes below to figure out how many boxes of peaches he sold in total.

Mixed-Number Mania

Take the 6-sided dice from the math box. To play this game, player 1 rolls the dice twice. He or she writes the matching mixed numbers from the key below on the whiteboard as an addition problem. Then he or she adds the mixed numbers. Player 2 repeats the same steps. The player with the higher sum wins that round. Play at least 3 rounds.

$2\frac{3}{8}$

$1\frac{4}{8}$

$3\frac{1}{8}$

$1\frac{2}{8}$

$4\frac{3}{8}$

$2\frac{1}{8}$

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LESSON PRACTICE

Add or subtract the mixed numbers below.

$1\frac{1}{8} + 2\frac{1}{8} =$ ___ $\quad 9\frac{4}{5} - 4\frac{1}{5} =$ ___

$3\frac{3}{7} + 3\frac{1}{7} =$ ___ $\quad 5\frac{8}{9} - 3\frac{4}{9} =$ ___

$2\frac{2}{6} + 4\frac{3}{6} =$ ___ $\quad 4\frac{3}{4} - 1\frac{2}{4} =$ ___

Fresh & Fruity

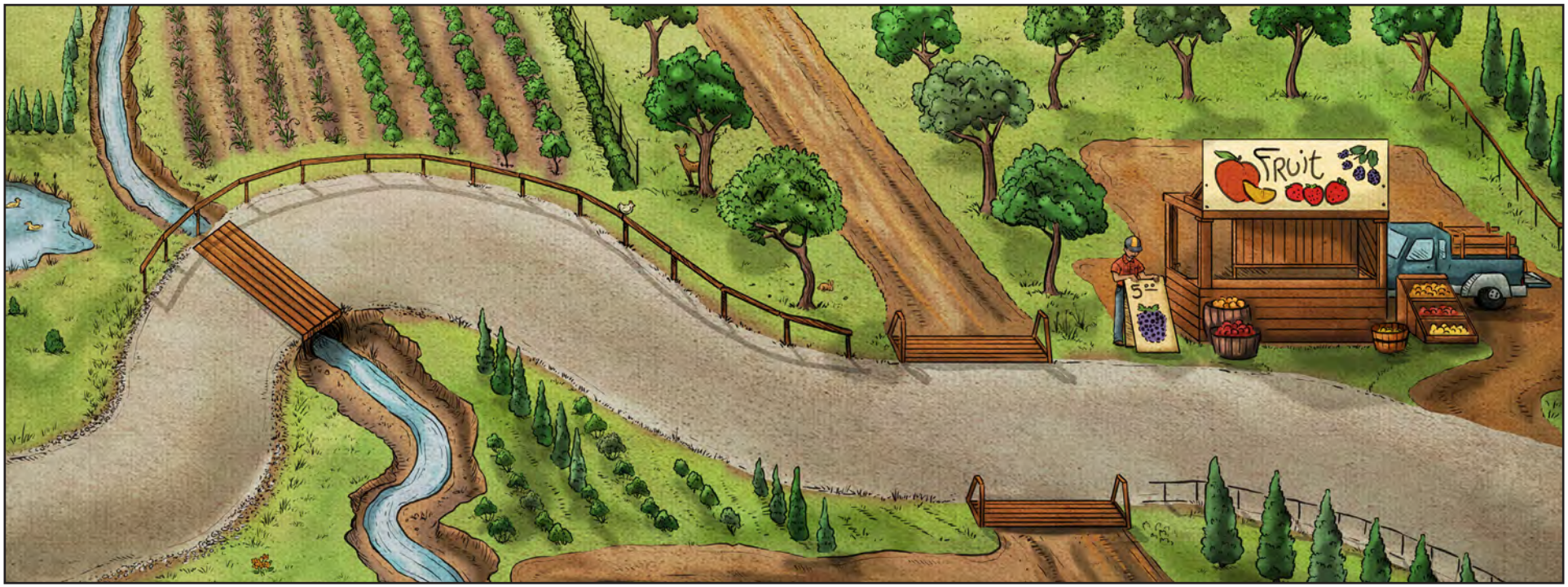
The mixed numbers next to each fruit show the number of servings that Rita ate. Use this information to answer the questions.

$1\frac{1}{5}$ $2\frac{3}{5}$ $3\frac{4}{5}$

How many servings of peaches and blackberries did Rita eat altogether? _____ peaches + _____ blackberries = ___

How many more servings of strawberries did Rita eat than of peaches? _____ strawberries − _____ peaches = ___

How many more servings of strawberries did Rita eat than of blackberries? _____ strawberries − _____ blackberries = ___



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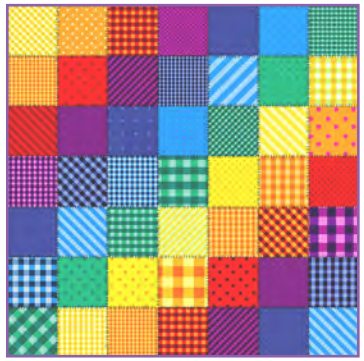
REVIEW & ACTIVITIES

Rita is learning how to make quilts with her mother and grandmother. Help her find the area of each quilt. Multiply the number of squares in each row by the number of squares in each column to find the area of each quilt.



☐ × ☐ = ☐

☐ × ☐ = ☐

Rita loves to read. She has $20 to spend on new books. Add the cost of all three books together to see if Rita can buy all the books.

$.
$.
+ $.

Can she buy all the books?
Circle one: YES / NO

Add the fractions below. When you have a common denominator, you only add the numerators and the denominator stays the same.

$\frac{2}{5} + \frac{1}{5} = \frac{\square}{\square}$ $\frac{5}{9} + \frac{3}{9} = \frac{\square}{\square}$ $\frac{4}{6} + \frac{1}{6} = \frac{\square}{\square}$

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. ☐

Find the FACTS

Write the answers to the multiplication facts.

5	7	8	6	7	9	8	9
× 6	× 5	× 6	× 3	× 6	× 7	× 3	× 8

The multiplication facts above are hidden in the chart below. Find the facts, circle them, and write the multiplication symbol and equal sign where they go. Facts can be horizontal, vertical, or diagonal. The first one is completed as an example.

9	8	72	4	6	4	8
9	1	5	3	1	10	3
0	7	2	6	4	2	24
7	1	63	56	30	15	34
2	6	3	6	6	3	18
18	1	42	6	8	6	48
7	5	35	36	3	4	9

× =

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Lesson 79

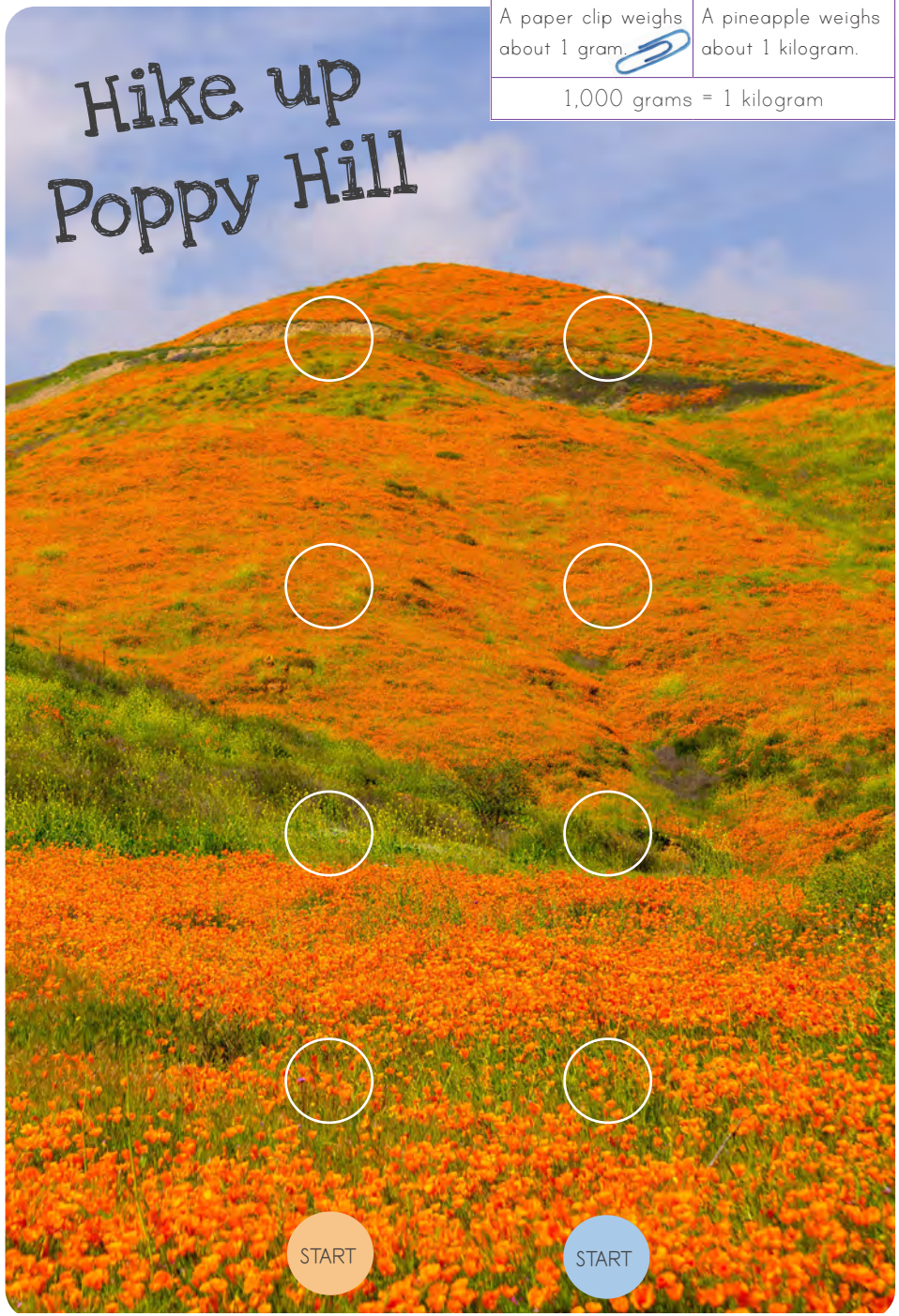
GRAMS AND KILOGRAMS: COMPARE AND ORDER

Mental Math

Subtract 9 from a number by first subtracting 10 and then adding 1.

48 - 9 = 76 - 9 = 53 - 9 = 84 - 9 = 197 - 9 =

Grams	Kilograms
A paper clip weighs about 1 gram.	A pineapple weighs about 1 kilogram.
1,000 grams = 1 kilogram	



○ Take the game pawns from the math box. Read to the child: You have learned that *kilo* is Latin for thousand, so a kilogram is 1,000 grams. That means a kilogram is one thousand times heavier than a gram. One paper clip weighs about 1 gram. How many paper clips would weigh about a kilogram? [1,000] Today, we are going to compare and order weights.

Every March Rita and her family hike a hill close to their home that they call Poppy Hill because it is covered in orange poppies. The orange poppy is California's state flower. This year, Rita and Tom have a race to see who can get to the top of the hill first. Let's see who wins. Place the orange game pawn (representing Rita) on the orange START circle, and the blue game pawn (representing Tom) on the blue START circle.

1. Roll the 10-sided dice for Rita. Find the green number on the chart below that corresponds to the number rolled on the dice. On a whiteboard write >, <, or = to compare the weights. If you wrote a greater than symbol, move Rita up a space. Otherwise, don't move. If you rolled a 10, you have to move back one space (unless you are on "START").
2. Repeat step 1, alternating between Rita and Tom. See who gets to the last circle at the top of the hill first!

> (greater than) = MOVE UP; everything else = DON'T MOVE

#1 1,000 kg ○ 100 g	#2 500 kg ○ 500 g	#3 10 kg ○ 1,000 g
#4 2,000 g ○ 1 kg	#5 2 kg ○ 1,000 g	#6 5 kg ○ 1,000 g
#7 7 g ○ 70 kg	#8 2,000 g ○ 2 kg	#9 3,000 g ○ 2 kg

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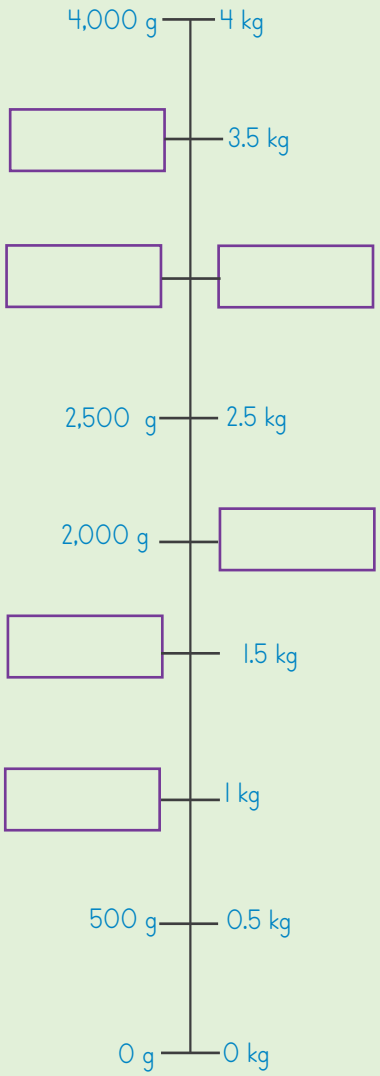
Let's use a number line to order weights. Place the following weights on the number line in their correct positions.

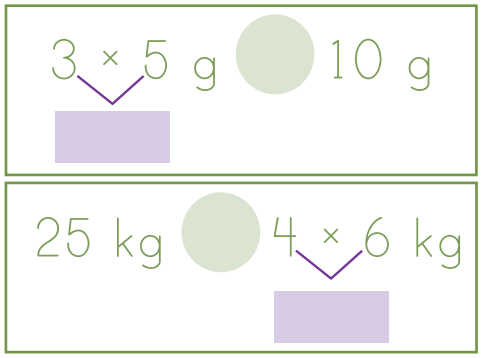
3 kg	3,000 g
3,500 g	1,500 g
2 kg	1,000 g



Sometimes we may know the weight of one item, and we need to know how much a group of that item weighs. To do this, we multiply the weight of the item by how many items there are. For example, 1 crayon weighs 8 grams. How many grams do 10 crayons weigh?

8 g per crayon × 10 crayons = _____ g

In the boxes below, do the multiplication and write >, <, or = signs to make the statements true.



Sometimes we need to change units so we can compare and order different weights. To change kilograms to grams, multiply by 1,000. For example, 4 kilograms is the same as 4,000 grams. Convert the kilograms to grams, and then write the weights from greatest (1st) to least (4th) in the blue boxes.

1 kg = _____ g 4,000 g

15 kg = _____ g 35 g

1st	2nd
3rd	4th

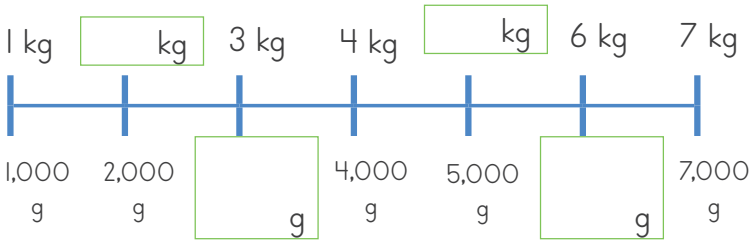
LESSON PRACTICE

Convert kilograms to grams, and then write the purple numbers in the blue boxes from greatest (1st) to least (4th).

5,300 g 35 kg = _____ g 2,500 g 2 kg = _____ g

1st	2nd
3rd	4th

Write the missing weights on the number line.



Write <, >, or = to compare each set of weights.

1 kg ◯ 1,000 g	2 kg ◯ 5,000 g
4 g ◯ 4 kg	1 g ◯ $\frac{1}{2}$ kg
7,000 g ◯ 70 kg	3 g ◯ 3 kg

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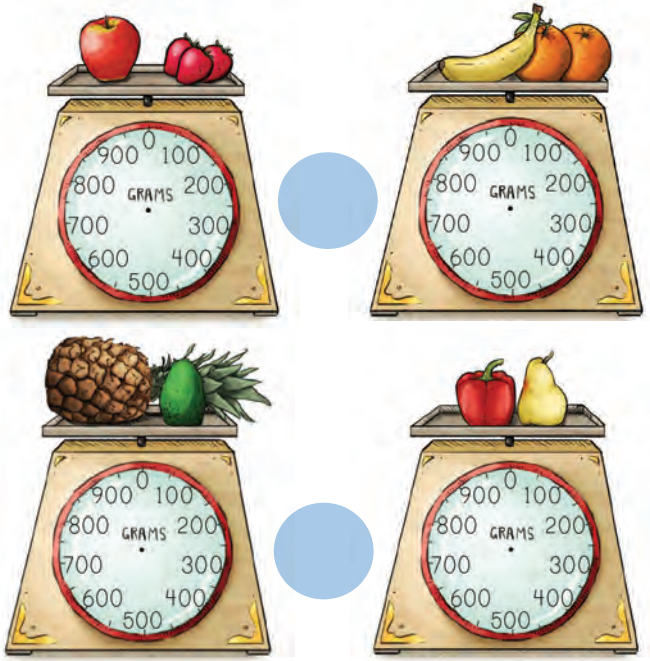
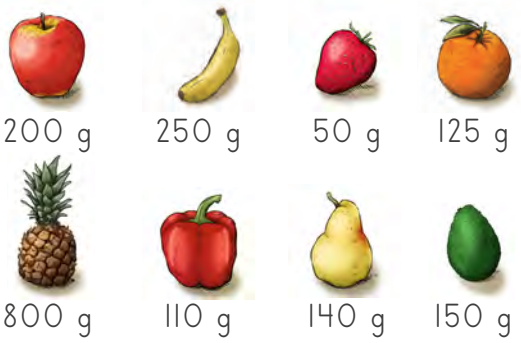
Weight ADDITION

Use the key below to see how much each fruit weighs. Add the weights together and draw an arrow to show the total weight of the fruits on each scale. Then use <, >, or = to compare each set of scales.



KEY



REVIEW & ACTIVITIES

If 1 strawberry weighs 60 grams, how many grams do 3 strawberries weigh?

× _____

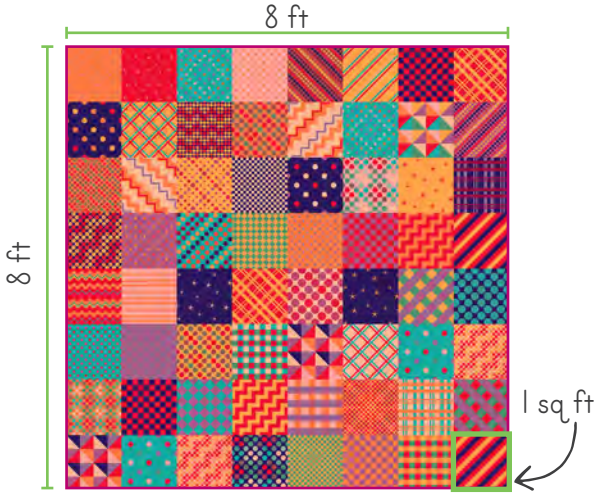
_____

If 1 orange weighs 90 grams, how many grams do 3 oranges weigh?

× _____

_____

This is the quilt Rita is entering at the county fair. Find the area by multiplying the number of rows by the number of columns. Then add the length of each side to find the perimeter.



Area = _____ × _____ = _____

Perimeter = _____

Fastest Birds!

An average speed for a car to drive on a freeway is around 65 miles per hour (mph). Complete each problem to find how many miles per hour each of these birds can fly. They can all be found in California.

27 × 9 = _____

99 × 2 = _____

28 × 2 = _____

15 × 4 = _____

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Multiplication Chart

REVIEW multiplication facts Sets A and B for 10 minutes or more. Then fill in the missing numbers on the multiplication chart.

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2		6	8	10	12	14	16	18	20
3	3	6			15	18		24		30
4	4	8	12			24		32		40
5	5	10	15			30	35			50
6	6	12	18		30		42	48	54	60
7	7	14			35	42	49		63	70
8	8	16	24	32		48			72	80
9	9	18				54	63	72		90
10	10	20	30	40	50	60	70	80	90	100

Hidden Wholes

Find and circle all the fractions that are equal to one.

$\frac{2}{3}$ $\frac{6}{6}$ $\frac{7}{9}$ $\frac{4}{4}$ $\frac{5}{5}$ $\frac{9}{9}$ $\frac{10}{10}$ $\frac{8}{8}$ $\frac{2}{2}$ $\frac{8}{10}$ $\frac{4}{9}$ $\frac{5}{8}$ $\frac{4}{4}$ $\frac{5}{5}$ $\frac{1}{2}$ $\frac{4}{8}$ $\frac{2}{4}$ $\frac{3}{3}$ $\frac{2}{5}$ $\frac{7}{7}$

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Lesson 80

PERIMETER: PART 3

Mental Math

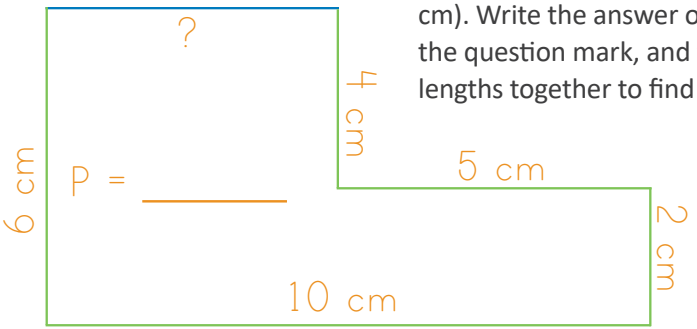
- Add or subtract, and then answer aloud.

452 + 400 = 684 - 300 = 232 + 700 = 861 - 500 =

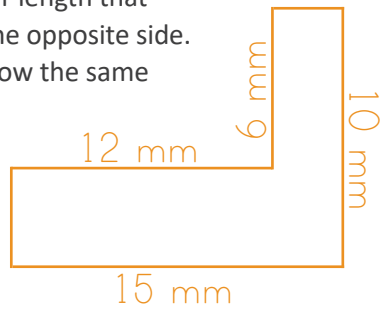
Skip Counting

- Skip count by 8s from 8 to 88.

○ Give the child a blue colored pencil. Read to the child: We have been practicing finding the perimeter of different shapes. You have learned that you do not need to have the measurement of every side of the shape to find the perimeter of squares and rectangles. Look at the figure below. There is one side without a measurement. Point to the side with the question mark, and then slide your finger down to the opposite side of the shape that is 10 centimeters long. Trace the 10 cm line with your colored pencil. Then move up to the side that is 5 centimeters long and trace it with your colored pencil as well. Notice how the length of the 5-centimeter line and the line without a measurement would combine to be the same length as the 10-centimeter line. To find the missing measurement, subtract the short length that you know (5 cm) from the total length of the opposite side (10 cm). Write the answer on the line above the question mark, and then add all the lengths together to find the perimeter.



You know that opposite sides of rectangles will always have the same length. We can use this knowledge to help us find missing measurements. First, use your colored pencil to trace one side that is missing a measurement. Then, use subtraction to find the length. To find the missing length, subtract the shorter length that you know from the total length found on the opposite side. Write the missing length on the shape. Follow the same steps to find the other missing length. Then add the lengths of all sides together to find the perimeter and write it below.

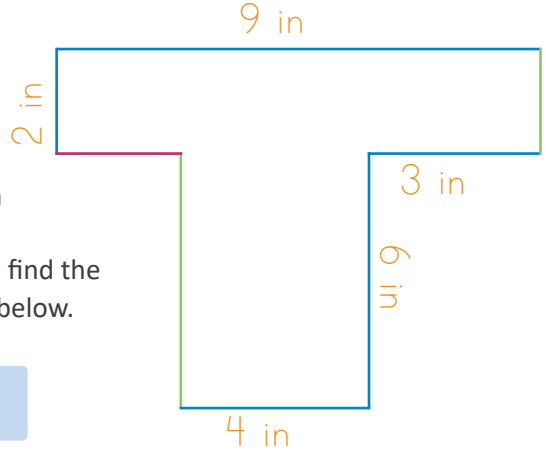


P =

Sometimes you may have to add two or more side lengths together to equal the full length of the opposite side. To find the length of the pink line in the shape below, you will need to add the length of the 4-inch line and the 3-inch line. Point to these lines. Then subtract that sum from the length of the opposite side, which is 9 inches in this shape. Use mental math to find the answer, and then write the length on the pink line.

Sometimes you can use the length of the opposite side to determine the missing length. Look at the line that is 2 inches long. Notice how the line across from this one is the exact same length. Write "2 in" on the short green line.

Use this same method to find the length of the long green line. Look across to the opposite side of the shape to find the measurement and write the length on the green line. Now we can add the length of all sides together to find the perimeter. Write the answer below.



P =

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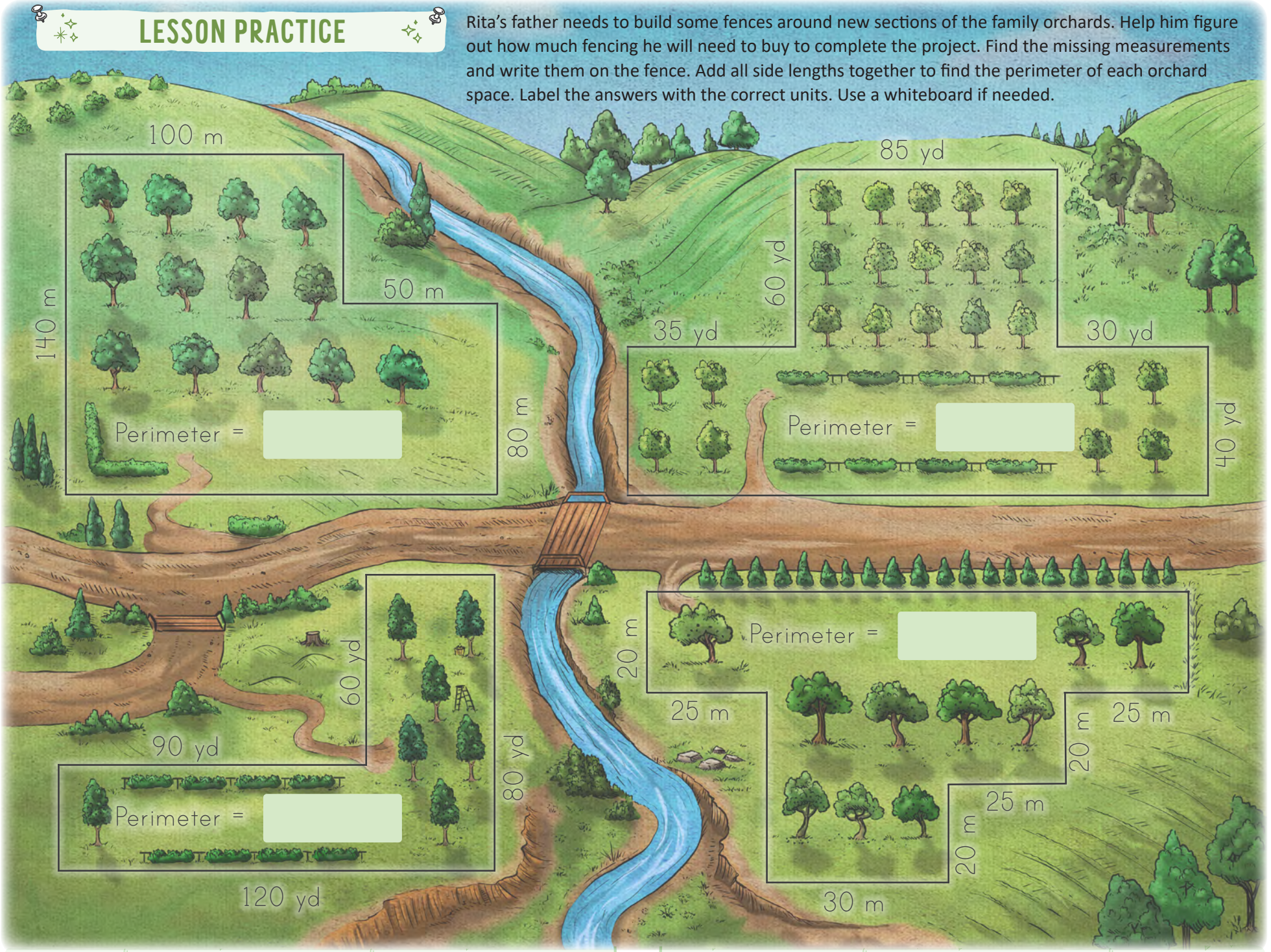
LESSON PRACTICE

Rita's father needs to build some fences around new sections of the family orchards. Help him figure out how much fencing he will need to buy to complete the project. Find the missing measurements and write them on the fence. Add all side lengths together to find the perimeter of each orchard space. Label the answers with the correct units. Use a whiteboard if needed.



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REVIEW & ACTIVITIES

Convert kilograms to grams, and then write the purple numbers in the blue boxes from greatest (1st) to least (3rd).

5,300 g

52 kg = _____ g

5 kg = _____ g

1st	2nd	3rd

An orange weighs about 200 grams. Underline the equation that shows about how many oranges weigh 1 kilogram.

200 oranges × 200 g per orange = 4,000 g

200 g per orange × 1,000 oranges = 200,000 g

200 g per orange × 5 oranges = 1,000 g

Change!

Use a whiteboard to complete the two-step story problem and write the final answer in the box.

Tom bought a hamster for $15.99 and a hamster cage for $32.97. He gave the cashier $50.00. How much change did he receive?

Complete the following sets of problems by first multiplying to find the total number of cents and then writing the total amount of money by using dollars and cents.

40¢ × 7 = _____¢ $_____

60¢ × 6 = _____¢ $_____

Take the array mat from the math box. Use a dry-erase marker to draw the following arrays. Find the area by multiplying the number of rows by the number of columns. Write the answers in the boxes.

Write the missing numbers to create addition problems by going across each row and down each column. (Hint: Complete 7 + ___ = 15 first.)

ADDITION

		9
7 +		= 15
	14	

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete the problems in this section.

9 × 8 = ____ 8 × 6 = ____ 6 × 7 = ____ 7 × 5 = ____

9 × 6 = ____ 6 × 3 = ____ 7 × 9 = ____ 7 × 7 = ____

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Lesson 81

MULTIPLICATION: THREE-DIGIT AND FOUR-DIGIT NUMBERS BY ONE DIGIT WITHOUT REGROUPING

Money

- How many dimes would you need to make $2.50?
- How many nickels are in 1 dollar?
- How many quarters are in 3 dollars?

Skip Counting

- Skip count by 5s from 100 to 200.
- Skip count by 50s from 500 to 1,000.

Read to the child: Today, we will continue learning how to multiply large numbers. Point to the multiplication problem below: 104 × 2. Let's begin by multiplying in the ones place. What is 2 × 4? Write an 8 in the ones place of the answer.

Next we multiply the 2 by the digit in the tens column, 0. What is 2 × 0? Write a 0 in the tens place of the answer. The last step is to multiply the 2 by the number in the hundreds column, 1. What is 2 × 1? Write a 2 in the hundreds place of the answer. The product of 104 and 2 is 208.

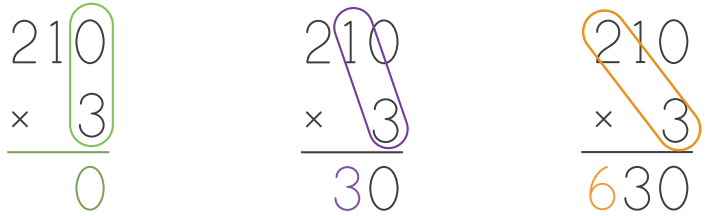
Hundreds	Tens	Ones
1	0	4
×		2

Read to the child: The order in which you multiply the bottom factor by the top factor will always be the same. Follow along as I read the steps.

Step 1
Multiply the 3 by the digit in the ones place: 3 × 0 = 0. Write a 0 at the bottom of the ones column.

Step 2
Multiply the 3 by the digit in the tens place: 3 × 1 = 3. Write a 3 at the bottom of the tens column.

Step 3
Multiply the 3 by the digit in the hundreds place: 3 × 2 = 6. Write a 6 at the bottom of the hundreds column.

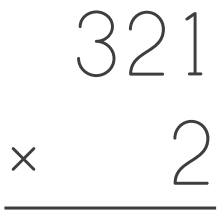


Read to the child: Let's go through the steps with another problem. This time, as I read the steps, you fill in the numbers where they should go.

Step 1
Multiply the bottom number by the digit in the ones place above: 2 × 1 = 2. Write a 2 at the bottom of the ones column.

Step 2
Multiply the bottom number by the digit in the tens place above: 2 × 2 = 4. Write a 4 at the bottom of the tens column.

Step 3
Multiply the bottom number by the digit in the hundreds place above: 2 × 3 = 6. Write a 6 at the bottom of the hundreds column.



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○ Read to the child: Let's go through the steps with another problem. As I read the steps, you write the numbers in the correct place of the answer.

Step 1
Multiply the bottom digit by the number in the ones place above.

Step 2
Multiply the bottom digit by the number in the tens place above.

Step 3
Multiply the bottom digit by the number in the hundreds place above.

Step 4
Multiply the bottom digit by the number in the thousands place above.

$$\begin{array}{r} 1{,}202 \\ \times \quad 4 \\ \hline \end{array}$$

○ Read to the child: Let's do one more problem with guided steps. Once again, as I read the steps, you write the numbers in the correct place of the answer.

Step 1
Multiply the bottom number by the digit in the ones place above.

Step 2
Multiply the bottom number by the digit in the tens place above.

Step 3
Multiply the bottom number by the digit in the hundreds place above.

Step 4
Multiply the bottom number by the digit in the thousands place above.

$$\begin{array}{r} 2{,}103 \\ \times \quad 3 \\ \hline \end{array}$$

LESSON PRACTICE

Multiply to find each product. The even products are the butterflies native to California. Put a check mark in the boxes next to the butterflies that can be found in California.

☐ Pale Swallowtail

$$\begin{array}{r} 441 \\ \times \quad 2 \\ \hline \end{array}$$

☐ Field Crescent

$$\begin{array}{r} 222 \\ \times \quad 4 \\ \hline \end{array}$$

☐ European Peacock

$$\begin{array}{r} 1{,}203 \\ \times \quad 3 \\ \hline \end{array}$$

☐ Red-Spotted Purple

$$\begin{array}{r} 9{,}675 \\ \times \quad 1 \\ \hline \end{array}$$

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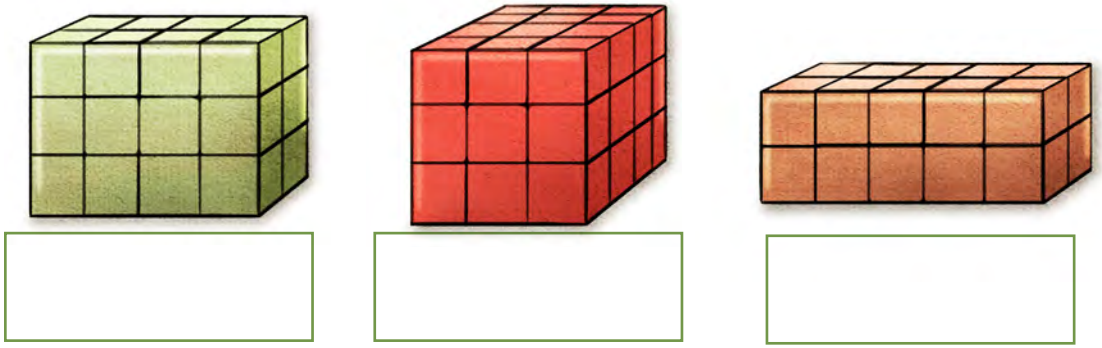
REVIEW & ACTIVITIES

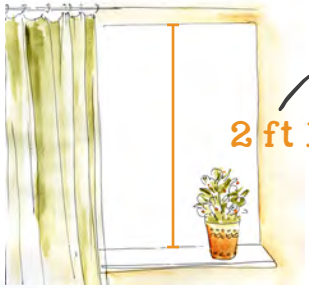
Write and complete a multiplication problem (# of cubes in a layer times # of layers) to find the volume of each shape. Use a whiteboard if needed.



Complete the conversions.

1 ft = ____ in	1 yd = _____ ft

How many inches tall is the window?



2 ft 10 in

____ in

\+ 10 in

____ in

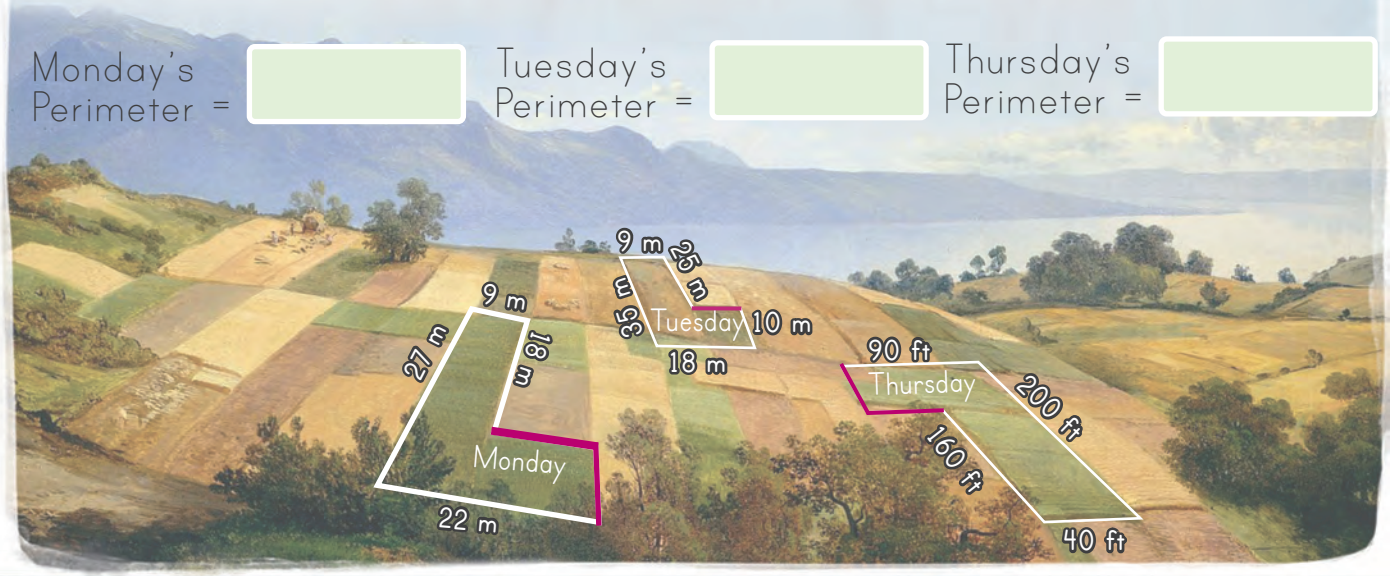
Patches of Field Perimeters

Farmer Gray worked on different parts of the field on different days. Find the lengths of the pink lines first. Use a whiteboard or scratch paper to find the perimeter of each patch, and then write the answers in the boxes below.

Monday's Perimeter = ____

Tuesday's Perimeter = ____

Thursday's Perimeter = ____



Add or subtract the mixed numbers below.

$4\frac{3}{4} - 1\frac{2}{4} =$ ____

$1\frac{1}{8} + 2\frac{1}{8} =$ ____

$3\frac{3}{7} + 3\frac{1}{7} =$ ____

$2\frac{2}{6} + 4\frac{3}{6} =$ ____

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Convert kilograms to grams, and then write the weights from greatest (1st) to least (3rd) in the blue boxes.

2,300 g

24 kg = _____ g

32 kg = _____ g

1st	2nd	3rd

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then write and complete a multiplication problem for each story.

Rita used 6 apples for each pie she baked. She baked 3 pies. How many apples did she use in total?

Dad planted 8 fruit trees in each row. He had 6 rows of trees. How many trees did he plant altogether?

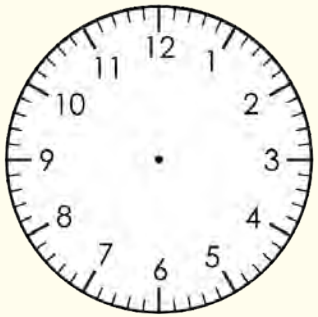
Mom painted 8 roses each on 3 of the walls of the baby's room. How many total roses did she paint?

Warren practiced multiplication facts 5 times a day for 6 days in a row. How many times did he practice in total?

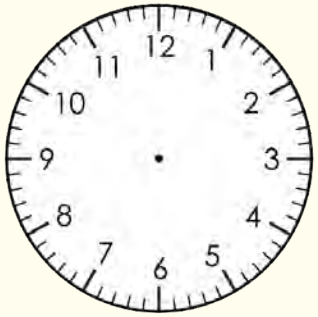
Tom picked 9 tomatoes from the garden every day for 7 days. How many tomatoes did he pick altogether?

Rita wrote 7 thank-you notes that had 6 lines each. How many lines did she write altogether?

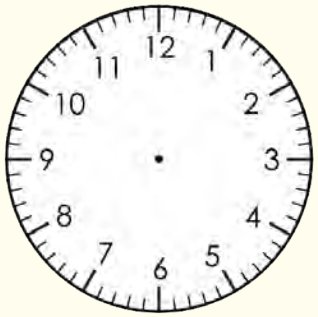
Show 10 past 6 on the clock.



Show 5 till 8 on the clock.

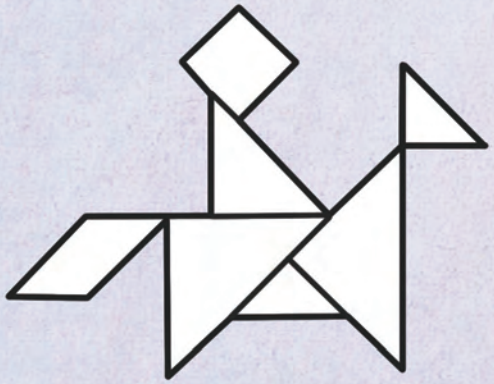


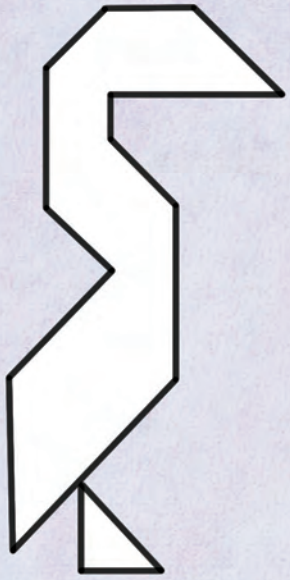
Show 10 till 3 on the clock.



Tangram Logic

Use all the orange tangram pieces to create each image.





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Lesson 82

VOLUME: PART 2

Missing Number

Fill in each blank with the missing number.

10 - ★ = 6 ★ = _____

8 - ◆ = 1 ◆ = _____ ◆ × ★ = _____

Factors

Write the factors of 21.

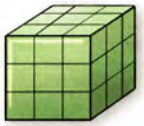
_____, _____, _____, _____

Read to the child: ***Volume*** is the amount of space an object or liquid takes up, or the number of cubic units an object contains. Volume is used to measure three-dimensional shapes, which are shapes that have length, width, and height.

You have learned to find volume by multiplying the number of cubes in each layer by the number of layers in the shape. Find the volumes of the shapes below.

cubes per layer × layers = cubes

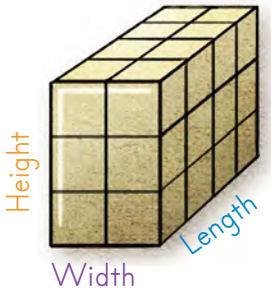
cubes per layer × layers = cubes



cubes per layer × layers = cubes

cubes per layer × layers = cubes

There is another way to calculate volume by using the following steps.



Step 1: Count the number of units across the bottom of the shape. This is the length. In our example, the length is 4 units.

Step 2: Count the number of units along the other side of the bottom. We call this the width. In our example, the width is 2 units. Multiply the length times the width.

4 units × 2 units = 8 square units

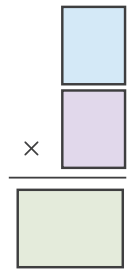
Step 3: Count how many units tall the shape is, or how many layers it has. This is the height. The height is 3 units. Then we multiply our answer from Step 2 by the height.

8 square units × 3 units = 24 cubic units

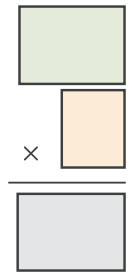
The total volume of our shape is 24 cubic units. What would happen if you multiplied the width and height first and then multiplied by the length? Use your whiteboard to complete the problem. Did you get the same result? The commutative property of multiplication tells us that we can multiply numbers in any order and the final product will be the same.

Multiplying the length, width, and height is especially useful when you can't count the units. You can multiply the measurements in any order, and you will get the same answer. To find the volume of the box below, choose two measurements to multiply together. Then multiply the product by the third measurement. Write the final answer in the gray box.

Steps 1 & 2



Step 3



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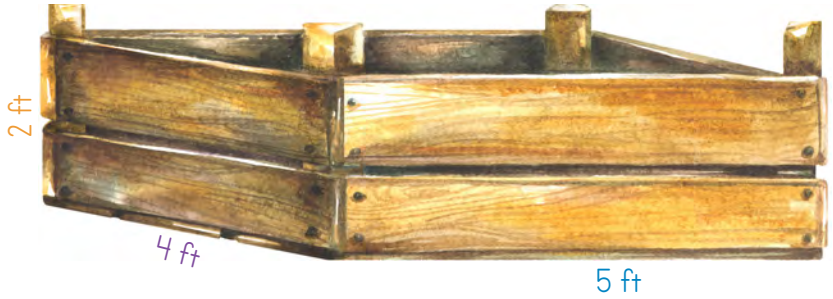
Find the volume of these household items by multiplying the length times the width times the height. You can multiply the numbers in any order, and you will get the same answer. Write the final answer in the gray box.

LESSON PRACTICE

Rita is planting her own garden this year. Her father built her a garden box, and now they need to order soil from the garden center to fill it. How much soil will they need?



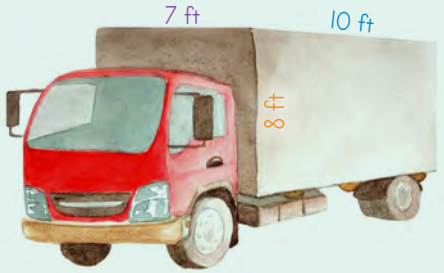
They will need _____ cubic feet of soil.

This is the truck that will be delivering the soil. How many cubic feet can it hold?

_____

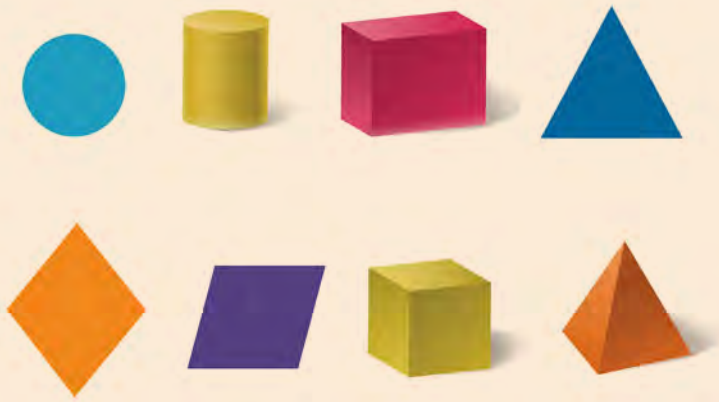
How much soil will be left after Rita gets her order?

_____



Circle the three-dimensional (3D) objects.

Put a check on the two-dimensional (2D) objects.



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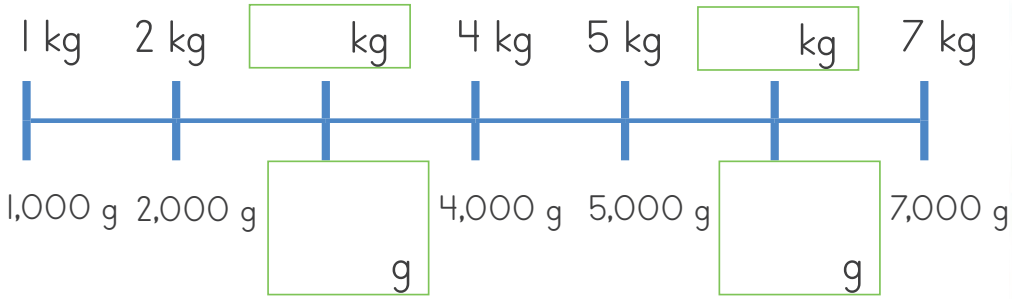
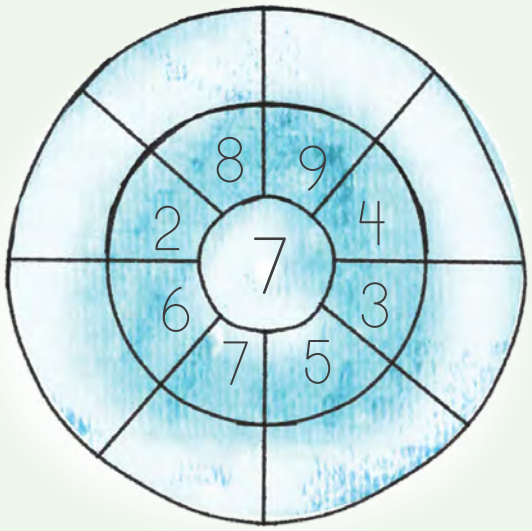
REVIEW & ACTIVITIES

Write the missing weights on the number line.



Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



Add or subtract the mixed numbers below.

$4\frac{3}{6} - 2\frac{1}{6} =$ ___

$5\frac{4}{5} - 3\frac{2}{5} =$ ___

$3\frac{2}{9} + 2\frac{6}{9} =$ ___

$7\frac{2}{7} + 1\frac{3}{7} =$ ___

$8\frac{7}{10} - 2\frac{5}{10} =$ ___

Fast Mammals!

An average speed for a car to drive on a freeway is around 104 kilometers per hour (km/h). What is the top speed of these North American mammals? Complete each problem to find the answer!

24 × 4 = ___ km/h:

40 × 2 = ___ km/h:

12 × 6 = ___ km/h:

17 × 4 = ___ km/h:

Complete the problems.

$$\begin{array}{r} 243 \\ \times\ \ 2 \\ \hline \end{array}$$

$$\begin{array}{r} 310 \\ \times\ \ 3 \\ \hline \end{array}$$

$$\begin{array}{r} 134 \\ \times\ \ 2 \\ \hline \end{array}$$

$$\begin{array}{r} 201 \\ \times\ \ 4 \\ \hline \end{array}$$

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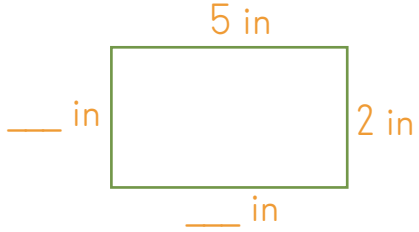
Lesson 83

PERIMETER: PART 4

Time

Read the time on each clock in two different ways. (For example, 2:30 could be read as "two thirty" or "half past two.")

○ Read to the child: You have learned that the perimeter of a figure is the total length of all sides of a 2D shape. Review this concept by filling in the missing length and width of the rectangle. Then calculate the perimeter. Remember to include the unit ("in") in your answer.



5 in + 2 in + _____ + _____ = _____

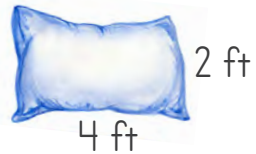
When finding the perimeter of a rectangle, we can use a quicker method. We can double the length, double the width, and then add them together. Look at the rectangle in the previous example. There are two lengths that measure 5 inches. Double 5 inches and write the answer in the first blank below. Now there are two widths that measure 2 inches. Double 2 inches and write the answer in the second blank. Now find the sum.

_____ in + _____ in = _____ in
2 × 5 in 2 × 2 in

Rita is making different-sized pillows to donate to a homeless shelter. She needs to know how much fabric border to add around the perimeter of each pillow. Practice finding the perimeter by doubling the length and the width and finding the sum. Remember to include the units in your answers.

_____ + _____ = _____
2 × 3 ft 2 × 2 ft

_____ + _____ = _____
2 × 2 ft 2 × 1 ft



_____ + _____ = _____
2 × 4 ft 2 × 2 ft

Perimeter Problem Solving

Read each story problem. Draw a rectangle and label the dimensions using the information given from the story problem. Then find the perimeter.

Duke's doghouse floor measures 4 ft by 3 ft. Find the perimeter.

Rita is painting a picture frame that is 10 in by 8 in. What is the perimeter of the frame?

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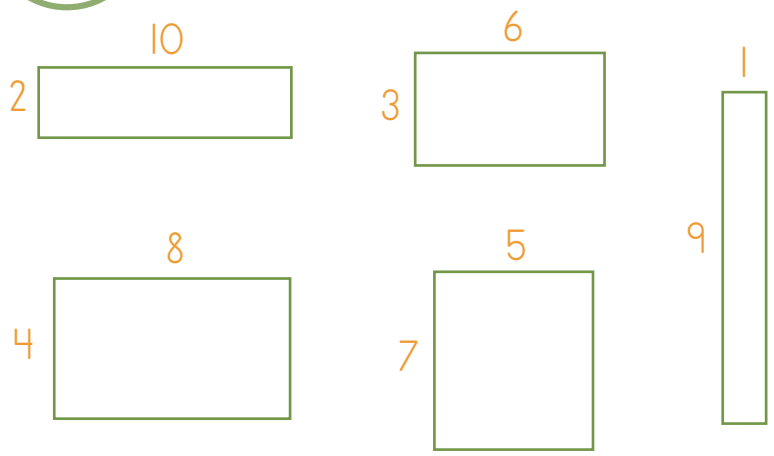
LESSON PRACTICE

Perimeter Possibilities 24

Circle all the rectangles that have a perimeter of 24. Double the length, double the width, and then add.



Take the array mat from the math box. Draw the following rectangles and find the perimeter of each one by doubling the length, doubling the width, and adding the products. Write the perimeter of each rectangle below.

Rectangle 1: 6 units long and 5 units wide _____

Rectangle 2: 4 units long and 3 units wide _____

Rectangle 3: 5 units long and 4 units wide _____

Rectangle 4: 6 units long and 2 unit wide _____

Below are pictures of Warren's poster projects. Take the measuring tape from the math box, use centimeters to measure the poster board, and fill in the measurements for each side. Then double the length, double the width, and add the products to find the perimeter.

Poster A

_____ cm

_____ cm

Poster A Perimeter = _____

Which poster has the greater perimeter? Write it in the top box. Find the difference between the perimeters.

_____ larger perimeter

– _____ smaller perimeter

_____ difference

Poster B

_____ cm

_____ cm

Poster B Perimeter = _____

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REVIEW & ACTIVITIES

Complete the problems using the subtraction across zeros strategy.

$$\begin{array}{r} 3{,}000 \\ -\ 2{,}429 \\ \hline \end{array}$$

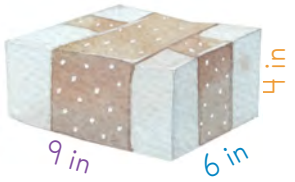
$$\begin{array}{r} 8{,}000 \\ -\ 3{,}234 \\ \hline \end{array}$$

$$\begin{array}{r} 4{,}074 \\ -\ 2{,}081 \\ \hline \end{array}$$

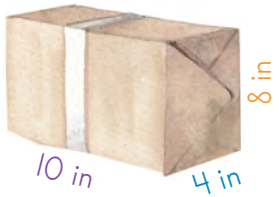
$$\begin{array}{r} 3{,}006 \\ -\ 2{,}407 \\ \hline \end{array}$$

$$\begin{array}{r} 7{,}000 \\ -\ 5{,}249 \\ \hline \end{array}$$

Find the volume of each gift box by multiplying the measurements of all three sides together in any order. Write the final answer in the gray box.



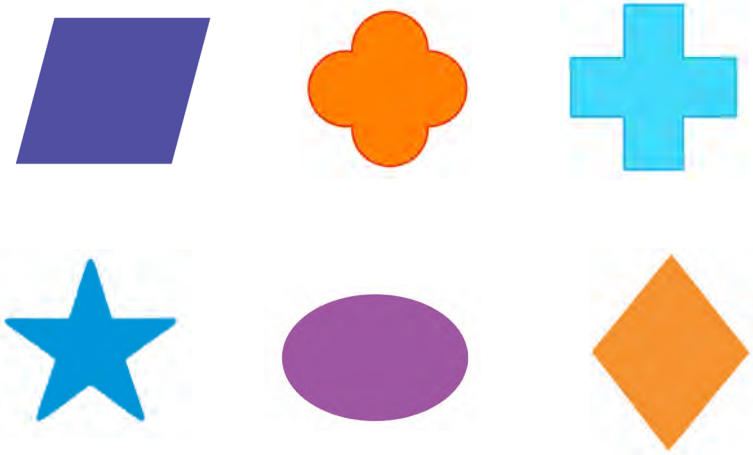
× ×



× ×

× ×

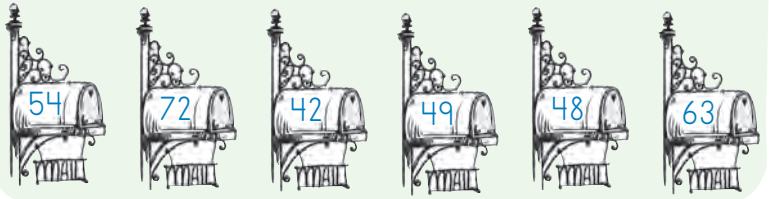
Draw lines of symmetry to show reflectional symmetry of the shapes below. Be sure to check for oblique (diagonal) lines of symmetry.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then draw a line from the problem to its answer.

9 × 8	9 × 6	7 × 9	7 × 7	7 × 6	6 × 8



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Lesson 84

TABLESPOONS AND TEASPOONS

Supplies
4 measuring spoons, sugar or salt

Math Facts

Quiz the child on the math facts from Set A to review.

4 × 3 | 4 × 8 | 5 × 3 | 8 × 4 | 4 × 6 | 3 × 4 | 3 × 5 | 6 × 4

○ Read to the child: You have learned many ways to apply measuring skills to real-life situations, such as measuring the length, weight, area, or perimeter of various objects. Measurements are also used with cooking. Tablespoons and teaspoons are used to measure small amounts of ingredients, such as sugar, salt, baking powder, vanilla, oil, and herbs.

Lay out the following 4 measuring spoons in front of the child. There are 4 measuring spoons that are most commonly used: 1 tablespoon, 1 teaspoon, $\frac{1}{2}$ teaspoon, and $\frac{1}{4}$ teaspoon. Look at the abbreviations for tablespoon and teaspoon. Then copy the abbreviations into the blue boxes below.

tablespoon | teaspoon

Tbsp | tsp

Take a close look at all the spoons and pick up the two that would hold the largest amounts. [1 tablespoon and 1 teaspoon] Let's find out how many teaspoons are in a tablespoon. It is helpful to know how to use the other measuring spoons to measure equal amounts.

How many teaspoons do you think it will take to fill up the tablespoon? Let's find out. Have the child fill the 1 teaspoon with salt or sugar and pour it into the tablespoon. Repeat this process until the tablespoon is completely filled [3 times]. Write your answer in the blank.

1 Tbsp = _____ tsp

How many $\frac{1}{2}$ teaspoons of salt or sugar do you think it will take to fill up the teaspoon? Let's see if you are right. Have the child pick up the $\frac{1}{2}$ teaspoon and fill it with salt or sugar and pour it into the teaspoon. Repeat until it is completely filled. Write your answer in the blank.

1 tsp = _____ $\frac{1}{2}$ tsp

How many $\frac{1}{4}$ teaspoons do you think it will take to fill up the teaspoon? Have the child pick up the $\frac{1}{4}$ teaspoon and fill it with salt or sugar and pour it into the teaspoon. Repeat until it is completely filled. Write your answer in the blank.

1 tsp = _____ $\frac{1}{4}$ tsp

Look at the numbers you wrote next to $\frac{1}{2}$ and $\frac{1}{4}$ teaspoons above. The denominator (bottom number) of each fraction is the same as the number of scoops needed to make a whole teaspoon.

○ Optional Extension: Involve the child in making a favorite recipe this week. Challenge him or her to use the smaller measuring spoons to make equivalent measures in place of the 1 tablespoon or 1 teaspoon.

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LESSON PRACTICE

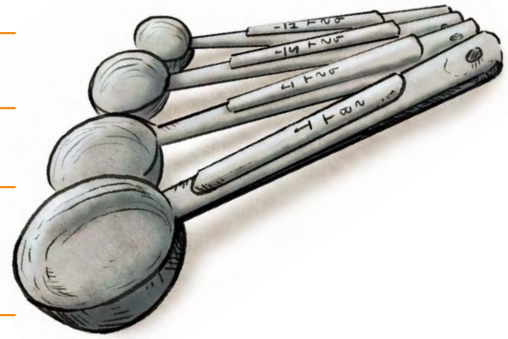
Write the measurements next to the spoons from least to greatest.

1 tsp ____

$\frac{1}{2}$ tsp ____

1 Tbsp ____

$\frac{1}{4}$ tsp ____



Use the comparison symbols >, <, = to make the statements true.

$\frac{1}{2}$ teaspoon ◯ $\frac{1}{4}$ teaspoon

1 teaspoon ◯ 1 tablespoon

$\frac{1}{2}$ teaspoon ◯ 1 teaspoon

3 teaspoons ◯ 1 tablespoon

Circle the number of teaspoons that is equal to a tablespoon.

Circle the number of $\frac{1}{2}$ teaspoons that is equal to 1 teaspoon.

Circle the number of $\frac{1}{4}$ teaspoons that is equal to 1 teaspoon.

Let's suppose you were making a recipe that needed 4 tablespoons of sugar. How many teaspoons would you need to use if you didn't have a tablespoon? Circle the teaspoons in groups of 3. Then write a multiplication equation in the boxes below to represent the groups you circled.

	×		=	
Number of Tbsp		Number of tsp in a Tbsp		Total number of tsp

Write the correct abbreviations in the blanks.

teaspoon: _____

tablespoon: _____

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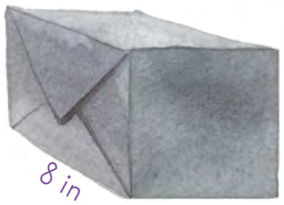
REVIEW & ACTIVITIES

Find the volume of this box by multiplying the measurements of all three sides together in any order. Write the final answer in the gray box.



× ×

Convert kilograms to grams, and then write the purple weights in the blue boxes from greatest (1st) to least (4th).

4,200 g	4 kg = _____ g	2 kg = _____ g	3,800 g
1st	2nd	3rd	4th

Continue the pattern: _____ _____

Multiply to find each product. The ODD answer is the California state bird. Put a check mark in the box next to the state bird.

☐ Meadowlark

342 × 2

☐ Quail

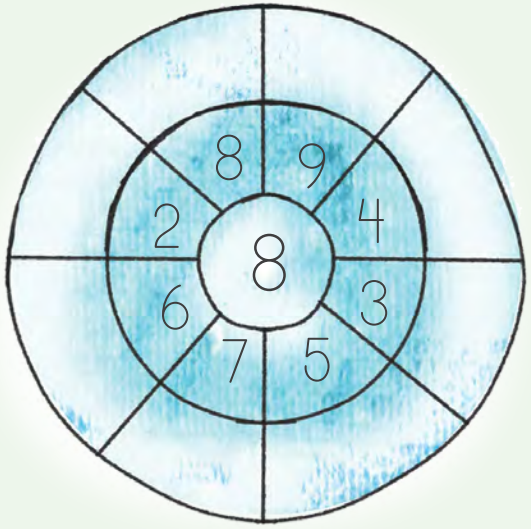
213 × 3

Find the perimeter and the area of the patchwork quilt. Write the answers below.

Perimeter = _____ Area = _____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



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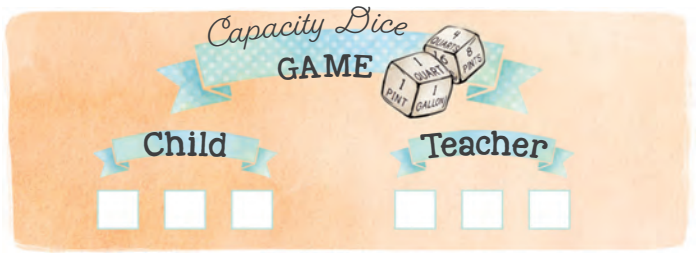
Lesson 85

PERFECT SQUARES

Capacity

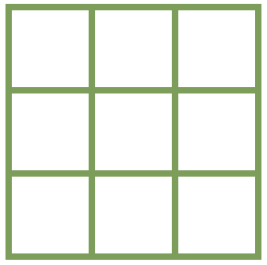
Play the "Capacity Dice Game." Refer to page ix for the instructions.

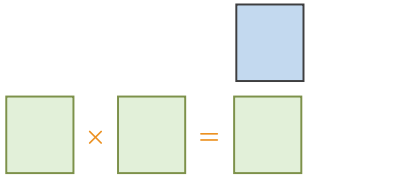


Read to the child: Previously you learned that area is the space inside a 2D shape. To find the area, you multiply the number of rows by the number of columns in a rectangle or square, and you use the words "square units" in the answer because area is the number of squares needed to cover a space.

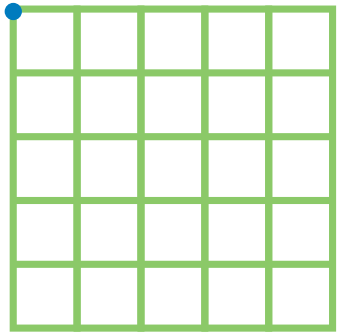
2 units × 3 units = 6 square units

In a square, there is an equal number of rows and columns inside the shape. Look at the example below. There are 3 rows and 3 columns of square units. Count how many square units there are and write your answer in the blue box. Check your answer by multiplying the number of rows by the number of columns.





Read to the child: On the grid below, draw a shape with 4 rows and 4 columns of units. To do this, start at the dot in the top left corner, and then count down 4 rows and draw another dot. Connect the dots with a line. Then, starting at the first dot, count 4 columns across and place another dot. Draw a line to connect the dots, and then complete the square shape by drawing in the other 2 sides and shading the area.



Count the number of square units in the square you just drew and complete the problem to find the area.

4 units × 4 units = ____ square units

The product of a whole number multiplied by itself is called a ***perfect square***.

A perfect square is the product of a whole number multiplied by itself.

Area Arrays

Take the array mat and a dry-erase marker from the math box.

- Draw a square that has 5 rows and 5 columns. Multiply to find the perfect square and write it below:

  5 units × 5 units = ____ square units

- Draw a perfect square with a total of 4 units. To do this, think of what number multiplied by itself equals 4. Test it on your array mat, and then fill in the equation below:

  ___ units × ___ units = 4 square units

- Erase your array mat, and then draw a square that has 8 rows and 8 columns. Multiply to find the perfect square and write it below:

  8 units × 8 units = ____ square units

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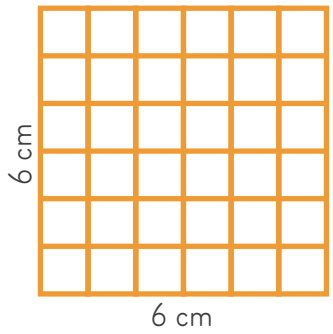
If the units are measured in inches, centimeters, feet, yards, meters, etc., you will use "square" followed by one of those units. For example, if you were measuring this square in centimeters and there were 6 rows and 6 columns, the formula to find the area would look like this:



6 cm × 6 cm = 36 square cm

In the chart below, some perfect squares are listed in the right column. This chart could go on forever!

1 × 1 = 1
2 × 2 = 4
3 × 3 = 9
4 × 4 = 16
5 × 5 = 25
6 × 6 = 36
7 × 7 = 49
8 × 8 = 64
9 × 9 = 81
10 × 10 = 100
11 × 11 = 121
12 × 12 = 144

LESSON PRACTICE

Rita and her 14-year-old brother, Tom, wanted to fix up an old table to use in their backyard. They decided to cover the table top with 1-foot square tiles to make it strong and durable, but they weren't sure how many tiles they would need.

Rita started by adding one tile to the top corner of the table. One tile was definitely not enough to cover the table's surface. Tom added three more tiles to make a square. How many tiles make up this perfect square?

2 × 2 = ___

More tiles were needed to cover the table, so Rita added one more row while Tom added another column. How many rows and columns are there now? How many tiles make up this perfect square? Write a multiplication equation.

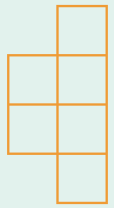
___ × ___ = ___

Rita added one more row and column of tiles, which covered the entire table. How many rows and columns are there? How many tiles make up this perfect square? Write a multiplication equation below.

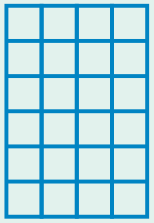
___ × ___ = ___

Pretend each unit is one square inch and find the area of the following shapes.

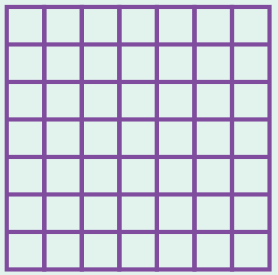
___ sq in



___ sq in



___ sq in



___ sq in

Circle the image that is a perfect square.

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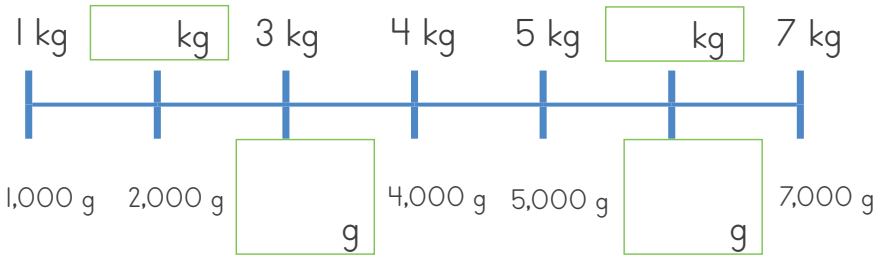
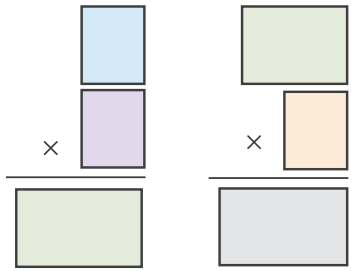
REVIEW & ACTIVITIES

Write the missing weights on the number line.



Find the volume of the gift box by multiplying all three measurements together in any order. Write the final answer in the gray box.



Continue the skip-counting number patterns.

−10, −9, −8, −7, _____, _____, _____, _____

20, 18, 16, _____, _____, _____, _____, _____

Use the comparison symbols >, <, and = to make the statement true.

$\frac{1}{4}$ teaspoon ◯ $\frac{1}{2}$ teaspoon		1 teaspoon ◯ 1 tablespoon	
$\frac{2}{2}$ teaspoon ◯ 1 teaspoon		3 teaspoons ◯ 1 tablespoon	

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have completed the problems in this section, which covers Set C multiplication facts as well as the 2s and some of the 10s.

5 × 6	6 × 3	7 × 5	6 × 2	10 × 10	5 × 2	4 × 2	2 × 2	10 × 8	10 × 2
2 × 8	6 × 9	7 × 6	8 × 6	7 × 7	9 × 7	2 × 3	10 × 6	2 × 9	
9 × 8	8 × 3	8 × 9	2 × 7	6 × 7	3 × 8	9 × 6			
6 × 5	5 × 7								

Measure the rope in centimeters and millimeters.

_____ cm = _____ mm

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Lesson 86

MULTIPLYING THREE-DIGIT OR FOUR-DIGIT NUMBERS BY ONE DIGIT WITH REGROUPING

Temperature

Have the child fill in the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your house today.

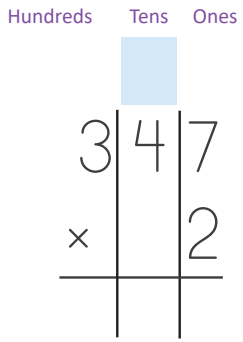
Skip Counting

- Skip count by 7s from 7 to 77.
- Skip count by 70s from 70 to 770.
- Continue the patterns, saying the numbers aloud:

130, 180, 230, 280, ____, ____, ____, ____, ____

945, 935, 925, ____, ____, ____, ____, ____

○ Read to the child: Let's continue learning about regrouping in multiplication with large numbers. Look at the multiplication problem 347 × 2. We will start with the ones place. What is 2 × 7? [14] You have already learned that the 1 must carry to the tens place, and the 4 is written in the ones place in the answer. Write a 1 in the blue box and a 4 in the ones place of the answer.



Next, we multiply the 2 times the digit in the tens column, 4: 2 × 4 is 8. Then we add the 1 that we carried: 8 + 1 is 9. Since 9 is a one-digit number, write 9 in the tens place of the answer. The last step is to multiply the 2 times the digit in the hundreds column, 3: 2 × 3 is 6. Again, since 6 is a one-digit number, write it in the hundreds place of the answer. The product of 347 and 2 is 694.

○ Read to the child: Let's go over the steps for multiplying with regrouping. Follow along, pointing to the digits in the problem that I'm talking about.

Step 1

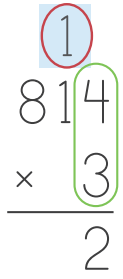
Multiply the digits in the ones place: 3 × 4 = 12. Carry the 1 to the tens place. Write the 2 at the bottom of the ones column.

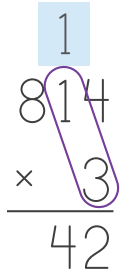
Step 2

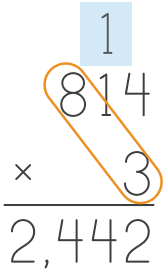
Multiply the 3 by the digit in the tens place: 3 × 1 = 3. Then add the 1 that was carried. 3 + 1 = 4. Write a 4 at the bottom of the tens column.

Step 3

Multiply the 3 by the digit in the hundreds place: 3 × 8 = 24. We are done multiplying, so we can write 24 in the answer below. Remember to write a comma.







○ Read to the child: Let's go through the steps with another problem. This time as I read the steps, you write anything that should be written.

Step 1: Multiply the bottom number by the digit in the ones place above: 6 × 3 = __. Carry the 1 to the tens column. Write the 8 at the bottom of the ones column.

Step 2: Multiply the bottom number by the digit in the tens place above: 6 × 1 = __. Remember that number and add the number that was carried: 6 + 1 = 7. Then write the 7 at the bottom of the tens column.

Step 3: Multiply the bottom number by the digit in the hundreds place above: 6 × 4 = __. Since there isn't a digit in the thousands place, we write 24 in the answer, with 4 in the hundreds column and 2 in the thousands column. Remember to write a comma.

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○ **Read to the child:** Let's go through the steps with another problem. As I read the steps, you write anything that should be written.

Step 1: Multiply the bottom number by the digit in the ones place. Write the digit in the ones place of your answer in the ones column. Carry the digit in the tens place to the next column and write it above.

Step 2: Multiply the bottom number by the digit in the tens place above. Add the number that was carried: 35 + 1 = 36. Write the digit in the tens place below. Carry the digit in the hundreds place of that sum to the next column and write it above.

Step 3: Multiply the bottom number by the digit in the hundreds place. Add the number that was carried: 20 + 3 = 23. Write the digit in the hundreds place below. Carry the digit in the thousands place of that sum to the next column and write it above.

Step 4: Multiply the bottom number by the digit in the thousands place. Add the number that was carried: 5 + 2 = 7. Write the sum in the thousands column below. Remember to write a comma in the final answer.

$$\begin{array}{r} 1{,}472 \\ \times \quad 5 \\ \hline \end{array}$$

○ **Guide the child through the problems below.** Complete these problems. The animal next to the odd answer is California's state mammal.

beaver

$$\begin{array}{r} 128 \\ \times \quad 7 \\ \hline \end{array}$$

grizzly bear

$$\begin{array}{r} 1{,}357 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 206 \\ \times \quad 3 \\ \hline \end{array}$$

marmot

$$\begin{array}{r} 6{,}023 \\ \times \quad 4 \\ \hline \end{array}$$

bighorn sheep

LESSON PRACTICE

Magnificent Mountains Multiply to find the height of the highest peak of each mountain in meters. Put a check mark in the box next to the tallest mountain peak.

☐ Castle Mountain

$$\begin{array}{r} 220 \\ \times \quad 6 \\ \hline \end{array}$$

☐ North Palisade

$$\begin{array}{r} 1{,}447 \\ \times \quad 3 \\ \hline \end{array}$$

☐ Dalton Mountain

$$\begin{array}{r} 401 \\ \times \quad 9 \\ \hline \end{array}$$

☐ Black Mountains

$$\begin{array}{r} 649 \\ \times \quad 3 \\ \hline \end{array}$$

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REVIEW & ACTIVITIES

Complete the problems using the subtraction across zeros strategy.

$$\begin{array}{r} 5{,}000 \\ -\ 3{,}429 \\ \hline \end{array}$$

$$\begin{array}{r} 8{,}000 \\ -\ 7{,}354 \\ \hline \end{array}$$

$$\begin{array}{r} 6{,}004 \\ -\ 2{,}361 \\ \hline \end{array}$$

$$\begin{array}{r} 7{,}500 \\ -\ 3{,}157 \\ \hline \end{array}$$

$$\begin{array}{r} 4{,}200 \\ -\ 1{,}349 \\ \hline \end{array}$$

Complete the following sets of problems by first writing the total number of cents and then writing the total amount of money using dollars and cents.

50¢ × 6 = _____¢

$_____

40¢ × 8 = _____¢

$_____

30¢ × 8 = _____¢

$_____

MULTIPLES MAGNET

This magnet attracts multiples of 7. Circle the multiples of 7 below.

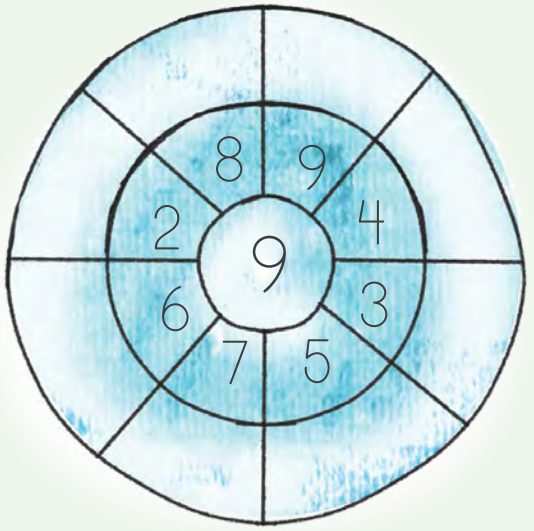
1	7	12	14	16	17
21	27	24	28	42	
35	37	30	49	47	
53	56	57	63	70	

Write three sets of factors for each number.

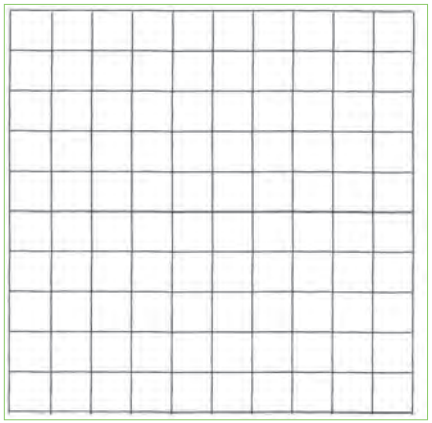
16	24
FACTORS	FACTORS
×	×
×	×
×	×

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



In the grid below, draw the perfect squares indicated. Write the area inside each square.



- A square with sides that are 6 units each (Start in the top left corner.)
- A square with sides that are 2 units each
- A square with sides that are 3 units each

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Lesson 87

AREA AND PERIMETER: STORY PROBLEMS

Mental Math

Fill in the blank with the missing number.

$3 \times \blacktriangle = 21$ $\blacktriangle =$ _____

$\pentagon \times 8 = 16$ $\pentagon =$ _____

$\bigstar \times 3 = 3$ $\bigstar =$ _____

$5 \times \blacklozenge = 40$ $\blacklozenge =$ _____

Read to the children: When you encounter a math story problem, you can look for words that give you hints about what kind of math should be used to complete a problem. If a story problem asks for perimeter, you need to find the sum of lengths of the outer edges. If it asks for area, you need to find the amount of space the object takes up. Read the following questions carefully to discover what the problem wants you to find.

Rita's dad drew some designs for a shed he is building in their yard. What would be the total distance around the base of the shed with these dimensions?

What does this problem want you to find: area or perimeter? _____

To find the perimeter of the base, we add the lengths of each side. Remember that the opposite sides of a rectangle are the same length.

7 ft + 8 ft + _____ + _____ = _____

Warren is going to seal the floor of the shed with a waterproof coating. How many square feet of floor will be covered?

What does this problem want you to find: area or perimeter? _____

We can calculate the area of the rectangular floor by multiplying the length times the width. Include the unit "square feet" in your answer.

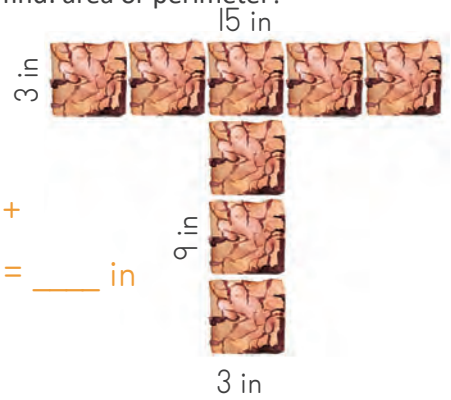
_____ ft × _____ ft = _____ _____

Tom baked two pans of brownies to share. He cut one pan of brownies into squares and decided to arrange some on a platter in the shape of a T. He will pipe frosting around the edges once they are cool. How many inches of frosting will go around the outside edge?

What does this problem want you to find: area or perimeter?

_____

Fill in the missing lengths, and then add to find the perimeter.



3 in + 15 in + ___ in + ___ in + ___ in + 3 in + 9 in + ___ in = ____ in

P = _____

Tom decided he'd rather cover the entire surface of the second pan of brownies with frosting. What is the area of the brownie surface?

_____ × _____ = _____ _____

BRAIN STRETCHER

If one bag of frosting covers 32 square inches of brownie, how many bags are needed to cover the whole pan?

32 sq in × _____ = 64 sq in

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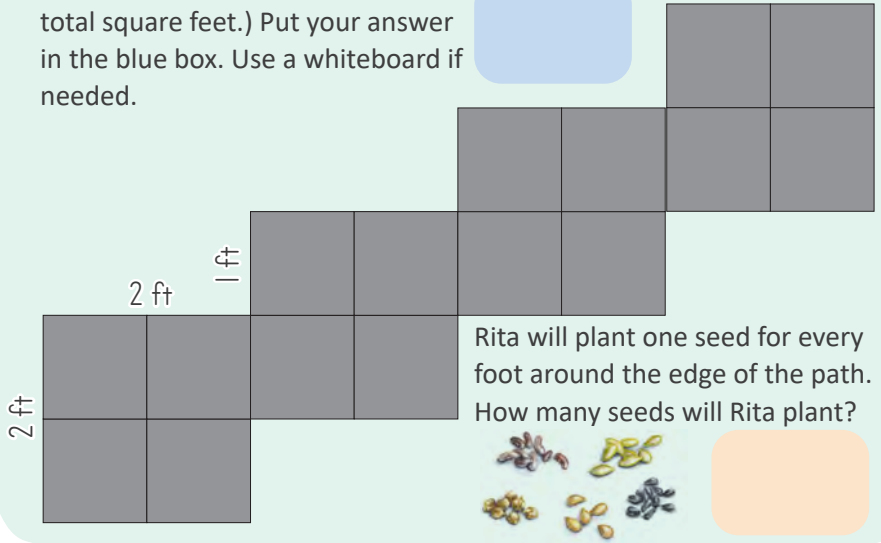
LESSON PRACTICE

Every spring, a beekeeper brings beehives into the orchards so the bees can pollinate the trees for a good harvest. How much land does this part of the orchard include?

_____ m × _____ m = _____ _____

The beekeeper wants to set up 4 beehives in the orchard. Each beehive needs to have an area of 5 square feet around it. What is the total area the beehives need?

Rita and her father are making a path through their garden. How many 1-ft square tiles will it take to fill in the path? (Hint: Find the area of one group of 2-ft by 2-ft squares, and then add that number together 4 times [or multiply by 4] to find the total square feet.) Put your answer in the blue box. Use a whiteboard if needed.



Rita will plant one seed for every foot around the edge of the path. How many seeds will Rita plant?

Story Problem Puzzle

Write the letter of the story problem next to the matching work, and then complete.

A Tom, Rita, and Warren went swimming with their neighbors. The pool was 13 meters long and 6 meters wide. How many square meters cover the surface of the pool?

B Rita wants to string lights around the railing of the tree fort. If the rectangular fort is 3 meters long and 2 meters wide, how many meters of lights does she need?

C The new onion patch in the garden is 36 feet long and 7 feet wide. What is the total area of the onion patch?

☐ 3 m + 2 m + 3 m + 2 m = _____ m

☐ 13 m × 6 m = _____ sq m

☐ 90 in per side × 4 sides = _____ in

☐ 8 yd × 80 yd = _____ sq yd

☐ 36 ft × 7 ft = _____ sq ft

D If the orchard's watering system covered a rectangle that was 8 yards wide and 80 yards long, how much land would be watered?

E How many inches of wood border are needed to build a square sandbox for Rita with sides that are each 90 inches long?

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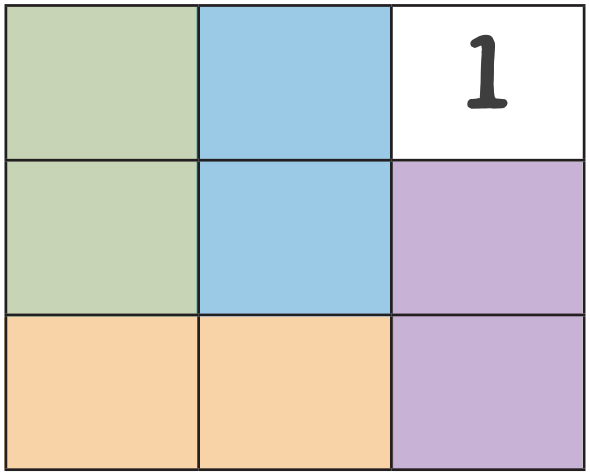
REVIEW & ACTIVITIES

Number Cube Puzzle

To complete this puzzle, you need the digits 1, 2, and 3 in each row and each column. Use the clues to help you complete it.



The digits in the green boxes must be 2 and 1.

The digits in the blue boxes must add up to 5.

The digits in the purple boxes must add up to 5.

The digits in the orange boxes must add up to 4.

Round the numbers to the nearest hundred.

546 _____ 862 _____

Circle the number of teaspoons that is equal to a tablespoon.

$$\begin{array}{r} 283 \\ \times \quad 4 \\ \hline \end{array}$$

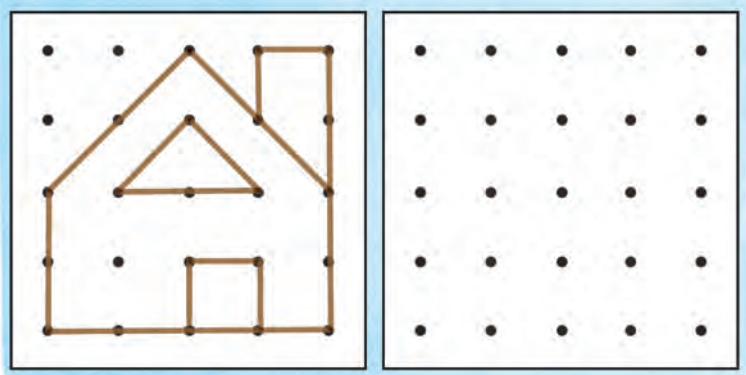
$$\begin{array}{r} 3{,}521 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 1{,}408 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 972 \\ \times \quad 3 \\ \hline \end{array}$$

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set C for 10 minutes or more. Then complete the problems below.

9 × 6	8 × 9	6 × 5	7 × 7	9 × 8	7 × 6
6 × 9	3 × 8	9 × 7	6 × 8	3 × 6	5 × 7

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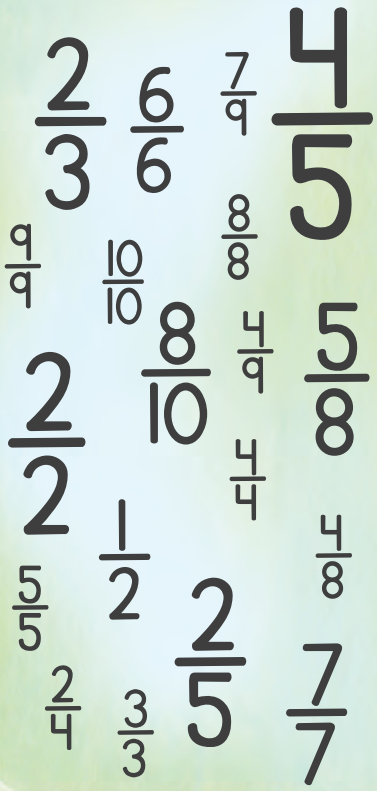
Multiplication Chart

Fill in the multiplication chart with the perfect squares. If desired, color the lines leading to the answer from the numbers on the side in a matching color. The perfect square for 10 is done for you.

Hidden Wholes

Find and circle all the hidden fractions equal to one.



×	1	2	3	4	5	6	7	8	9	10
1		2	3	4	5	6	7	8	9	10
2	2		6	8	10	12	14	16	18	20
3	3	6		12	15	18	21	24	27	30
4	4	8	12		20	24	28	32	36	40
5	5	10	15	20		30	35	40	45	50
6	6	12	18	24	30		42	48	54	60
7	7	14	21	28	35	42		56	63	70
8	8	16	24	32	40	48	56		72	80
9	9	18	27	36	45	54	63	72		90
10	10	20	30	40	50	60	70	80	90	100

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Lesson 88

REVIEW GAMES

Calendar

Have the child fill in the calendar chart on the back of the array mat with the number of days in each month during a leap year.

- How many days are in February during a leap year?
- Which is the 4th month? Which is the 8th month?

Read to the child: Today, we are going to review the things you have been practicing in Unit 3. We will play some games together, and you will do some activities independently.

Area Arrays

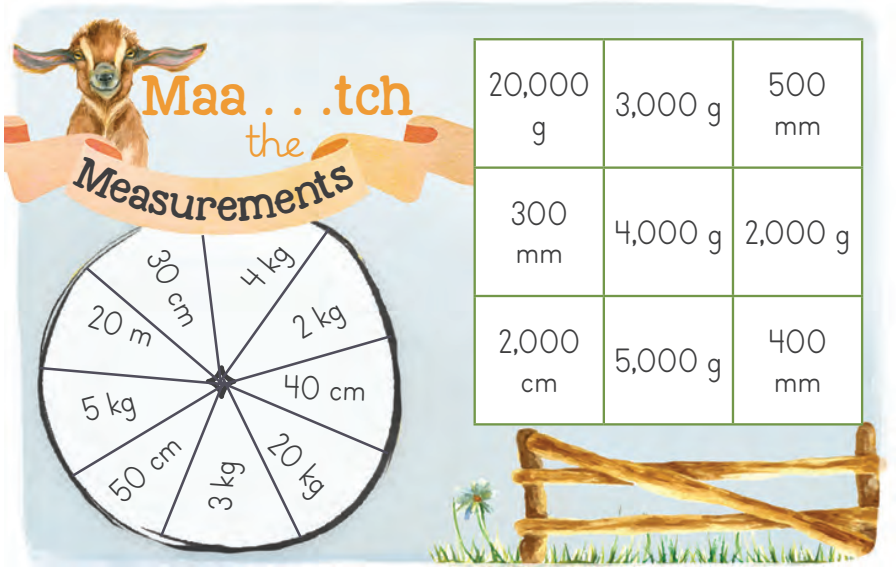
Take the array mat, two colors of dry-erase markers, and the 6- and 10-sided dice from the math box.

The first player rolls both dice and, on the array mat, draws a rectangle using the numbers rolled as the dimensions. For example, if you roll a 9 and a 2, you will draw a rectangle that is 2 units wide and 9 units long. The player counts the units (each square) or uses multiplication to find the area and writes the area inside the rectangle. The second player does the same with a different-colored marker. Shapes cannot overlap.

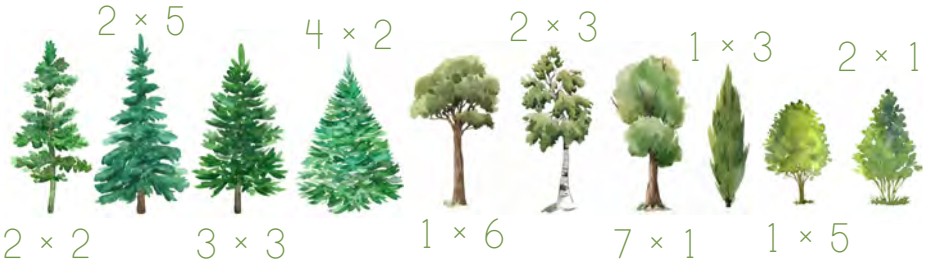
If doubles are rolled, draw the width and height on the array mat, and then connect the two sides to create a triangle. Write the area of the triangle inside your shape.

The game ends when there is no more space to draw a shape without overlapping another shape. The person with the most total area on the mat wins. Bonus: Take area from the other player by drawing shapes with smaller areas inside larger ones.

Game—Spin & Match: Take the paper clip from the math box. Read to the child: We will take turns using a pencil and paper clip to spin. Convert the measurement you land on to a smaller unit. For example, kilograms will change to grams, meters to centimeters, and centimeters to millimeters. Mark off the matching box with your initials. If you spin a measurement that has already been claimed, your turn is over. The first player to claim three boxes in a row is the winner. If no one gets 3, you tie.



Game—Factor Forest: Read to the child: Take the 10-sided dice from the math box. Take turns rolling the dice and finding a tree with a factor pair of the number rolled. For example, if the number 4 is rolled, then look for 2 × 2 or 4 × 1. With a colored pencil, circle all the trees whose factor pair gives the product of the number rolled. Then it is the other player's turn. If no factor pairs remain for the number rolled, your turn is over. Continue until all the trees have been claimed. The player with the most trees circled is the winner.



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○ Have a whiteboard and dry-erase marker ready. Take the 6-sided dice and two game pawns from the math box. Read to the child: Let's play "Multiplication Tour." Place the game pawns on "Start." You go first. Roll the dice and move that many spaces. Write the problem vertically on the whiteboard and complete it. If the answer is correct, then you can move forward on your next turn. If the answer is incorrect, then do not roll again for your next turn. Instead, work the problem again. Then it is my turn. The first person to get all the way around California twice wins! Repeat the game one or more times.

REVIEW & ACTIVITIES

Mixed Number Puzzle

Complete each problem by **adding or subtracting** the mixed numbers. Start in the top left and move across and down to find answers. Match the mixed number in the orange box to the mixed number below to find the California state amphibian.

$2\frac{3}{5}$	+	$1\frac{1}{5}$	=	
−		+		−
$1\frac{2}{5}$	−	$1\frac{1}{5}$	=	
=		=		=
	+		=	

red-legged frog

tree frog

✧ Multiplication Fact QUIZ – Set C ✧

Practice multiplication facts Set C for 10 minutes. Then complete the problems in this section. Have your parent or teacher record the ones you got right on the Mastery Chart on page viii.

$$\begin{array}{r} 7 \\ \times\ 7 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times\ 5 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times\ 7 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times\ 3 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 9 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times\ 8 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times\ 5 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times\ 6 \\ \hline \end{array}$$

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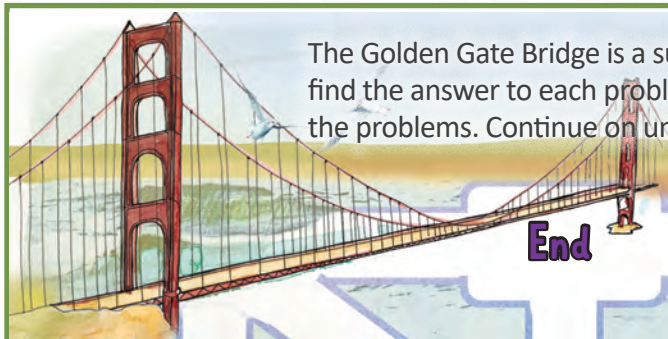

The Golden Gate Bridge is a suspension bridge that is more than a mile long and is located in California. Begin at "Start" and find the answer to each problem. Follow the path that contains the correct answer. Use a whiteboard if needed to complete the problems. Continue on until the boat reaches "End" at the bridge. Use your pencil to mark the path it takes.

End

			$11\frac{8}{9}$	$7\frac{6}{9} - 4\frac{2}{9}$	14	8×7	-20 ft	200 ft below sea level
520	$5\frac{1}{8}$	$5\frac{5}{8}$	36	$3\frac{4}{9}$	$\frac{5}{7}$	$\frac{1}{7}$	-200 ft	-10°
8×70	$3\frac{5}{8}$	$4\frac{3}{8} + 1\frac{2}{8}$	4,200	600×7	$\frac{5}{14}$	$\frac{3}{7} + \frac{2}{7}$	10°	10° below 0
2,596	280	560	\$3.31	\$1.20	45	395	936	\$12
$1,243 \times 2$	2,465	700×4	\$6.10	20t × 8	645	312×3	24	40t × 3
720	2,486	30	32	\$1.60	$\frac{2}{10}$	28	\$1.20	$3\frac{3}{7}$
90×8	640	2 lb = _ oz	26	$\frac{6}{10} - \frac{4}{10}$	16	Multiple of 6	$7\frac{5}{7}$	$5\frac{4}{7} - 2\frac{1}{7}$
3,000	300	21t	1,000	$\frac{10}{10}$	22	36	$3\frac{5}{7}$	2,400
3 kg = _ g	\$2.10	30t × 7	2,000	1 ton = _ lb	84	28×3	240	400×6

Start

Mixed Review Maze

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LESSONS 89-90

UNIT ASSESSMENT

Parent/Teacher

Read the following information to the child: Unit assessments give you practice with the math concepts learned in this unit without having you over practice concepts that you have mastered. These assessments also give you practice working on math problems for an extended period of time. This helps you extend focus and attention span and to be better prepared for any type of testing you will have to do in the future. Here are some tips. First, make sure to always read the instructions carefully. Sometimes you can get answers wrong simply because you did not understand the instructions. Second, do not rush through exercises you think you already know. Instead, make sure to do your work carefully. Sometimes you can get answers wrong, even though you understand the concept, just because you rushed.

For Lesson 89, have the child complete all the exercises with PURPLE headers only. At this level, you may need to read some of the instructions. Correct the work. If the child makes one or more mistakes in a section, explain the concept and check the orange "Additional Practice" checkbox for that section.

For Lesson 90, have the child complete all the ORANGE sections **that are checked**. If the child still makes multiple mistakes, make sure the child understands why. All the principles will be reviewed again in the upcoming unit. If the child has only a few or no orange sections to practice, the child may spend time doing math games or move on to the next lesson.

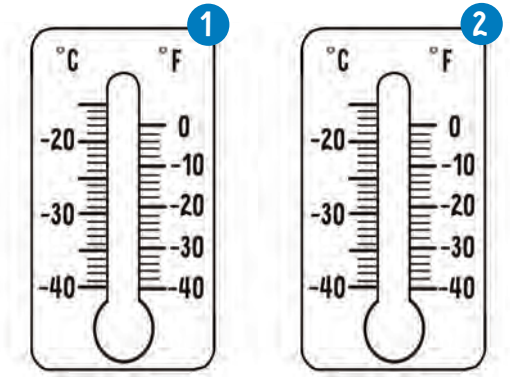
Note: All concepts in Unit 3 will be reviewed throughout the rest of the course, but less frequently.

Student

NEGATIVE NUMBERS AND TEMPERATURE

Shade the thermometers to show the negative temperatures.

1. -35 °C / -31 °F
2. -40 °C / -40 °F



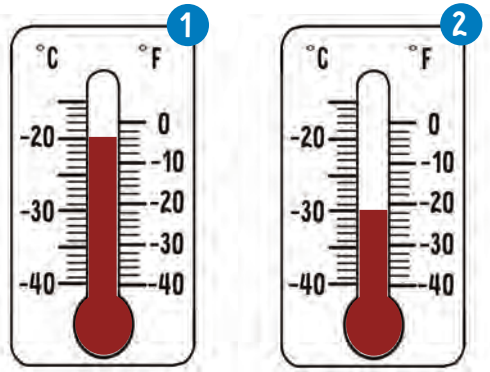
Continue the skip-counting pattern.

-10, -8, -6, -4, ____, ____, ____, ____, 6

Additional Practice

Write the negative temperature that is shown on the thermometers in both Celsius and Fahrenheit.

1. ____ °C, ____ °F
2. ____ °C, ____ °F



Fill in the missing numbers on the number line. Start by writing a zero under the red tick mark.

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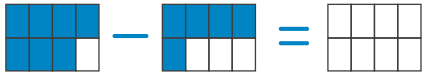
ADD AND SUBTRACT FRACTIONS

In the blanks write the shaded part of each shape as a fraction. Then add or subtract the fractions. Shade the final shape to show the answer.



___ + ___ = ___

___ − ___ = ___

Add or subtract the fractions and mixed numbers below.

$\frac{3}{9} + \frac{5}{9} =$ ___

$\frac{1}{4} + \frac{2}{4} =$ ___

$4\frac{5}{8} + 3\frac{1}{8} =$ ___

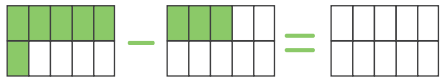
$5\frac{2}{2} - 2\frac{1}{2} =$ ___

$2\frac{3}{7} - 1\frac{2}{7} =$ ___

$3\frac{2}{6} + 3\frac{2}{6} =$ ___

Additional Practice

In the blanks write the shaded part of each shape as a fraction. Then add or subtract the fractions. Shade the final shape to show the answer.



___ + ___ = ___

___ − ___ = ___

Add or subtract the fractions and mixed numbers below.

$\frac{2}{7} + \frac{2}{7} =$ ___

$\frac{1}{5} + \frac{2}{5} =$ ___

$4\frac{5}{8} - 2\frac{3}{8} =$ ___

$7\frac{4}{6} - 4\frac{2}{6} =$ ___

$2\frac{5}{8} + 2\frac{1}{8} =$ ___

$1\frac{2}{6} + 3\frac{2}{6} =$ ___

MULTIPLYING BY MULTIPLES OF 10, 100, AND 1,000

Find the products below.

$2 \times 500 =$ ___ $4 \times 7{,}000 =$ ___

$5 \times 90 =$ ___ $8 \times 300 =$ ___

$3 \times 2{,}000 =$ ___ $6 \times 40¢ =$ ___

Convert the total number of cents for the last problem to dollars and cents. $\$\_\_\_.\_\_\_$

Additional Practice

Find the products below.

$3 \times 5{,}000 =$ ___ $7 \times 200 =$ ___

$4 \times 30 =$ ___ $9 \times 400 =$ ___

$2 \times 9{,}000 =$ ___ $8 \times 60¢ =$ ___

Convert the total number of cents for the last problem to dollars and cents. $\$\_\_\_.\_\_\_$

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MULTIPLYING LARGE NUMBERS

Find the products below. Carry when necessary. Circle the smallest product, which is next to California's state gemstone.

benitoite

$$\begin{array}{r} 32 \\ \times\ 3 \\ \hline \end{array}$$

quartz

$$\begin{array}{r} 2{,}104 \\ \times\ 2 \\ \hline \end{array}$$

amethyst

$$\begin{array}{r} 615 \\ \times\ 4 \\ \hline \end{array}$$

red agate

$$\begin{array}{r} 74 \\ \times\ 8 \\ \hline \end{array}$$

Additional Practice

Find the products below. Carry when necessary. Circle the smallest product, which is near California's state reptile.

bearded dragon

$$\begin{array}{r} 102 \\ \times\ 4 \\ \hline \end{array}$$

tortoise

$$\begin{array}{r} 22 \\ \times\ 3 \\ \hline \end{array}$$

chameleon

$$\begin{array}{r} 1{,}352 \\ \times\ 6 \\ \hline \end{array}$$

snake

$$\begin{array}{r} 631 \\ \times\ 5 \\ \hline \end{array}$$

MULTIPLES AND FACTORS OF A NUMBER

Write three sets of factors for each number.

12	16	20
FACTORS	FACTORS	FACTORS
×	×	×
×	×	×
×	×	×

Circle all the multiples of 4 listed below (which are numbers found by multiplying 4 by a whole number).

2 4 5 6 8 10 12 14 16 20
22 24 28 30 32 35 36 38 40

Additional Practice

Write two or three sets of factors for each number.

6	10	18
FACTORS	FACTORS	FACTORS
×	×	×
×	×	×
		×

Circle all the multiples of 5 listed below (which are numbers found by multiplying 5 by a whole number).

1 4 5 8 10 12 15 20 24 25
28 30 33 35 38 40 44 45 50

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MEASUREMENT: GRAMS AND KILOGRAMS

Write a >, <, or = symbol to compare each set of weights.

6 kg ◯ 8,000 g 2,000 g ◯ 2 kg

Convert kilograms to grams, and then write the blue weights in the purple boxes from greatest (1st) to least (4th).

6,500 g 6 kg = _____ g 7,200 g 7 kg = _____ g

1st	2nd	3rd	4th

Additional Practice

Write a >, <, or = symbol to compare each set of weights.

4 kg ◯ 4,000 g 2 kg ◯ 7,000 g

Convert kilograms to grams, and then write the blue weights in the purple boxes from greatest (1st) to least (4th).

2,200 g 4 kg = _____ g 3,500 g 3 kg = _____ g

1st	2nd	3rd	4th

MEASUREMENT: OUNCES, POUNDS, TONS

Fill in each bubble with the correct symbol: >, <, or =.

1 oz ◯ 1 lb

1 ton ◯ 6 tons

Order the following weights from least to greatest.

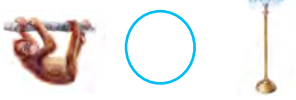
2 lb 8 oz 1 ton 100 lb

_____, _____, _____, _____

Additional Practice

Fill in each bubble with the correct symbol: >, <, or =.

5 oz each ◯ 12 lb


10 lb ◯ 8 lb

Order the following weights from least to greatest.

8 lb 14 oz 3 tons 55 lb

_____, _____, _____, _____

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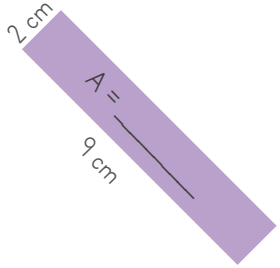
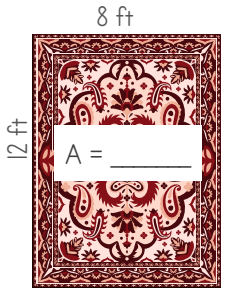
PERIMETER AND AREA

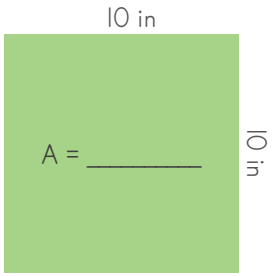
Write the area on the line inside each shape and the perimeter on the line below. Include the unit labels.



P = _____

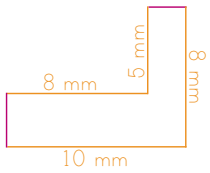


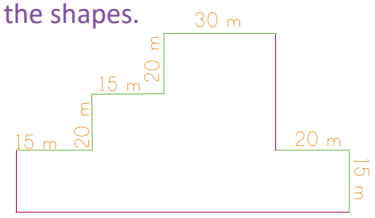
P = _____



P = _____

Fill in the missing lengths, and then write the perimeter on the shapes.



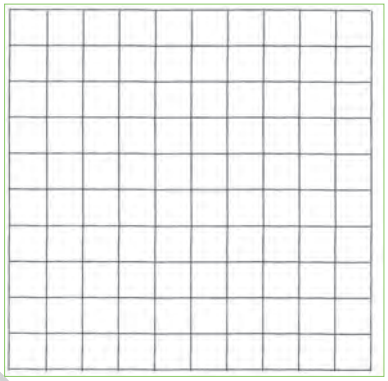


Circle the correct area.

10 units
8 sq units
6 sq units

Additional Practice

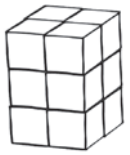
On the grid below, draw the shapes indicated and follow the directions.



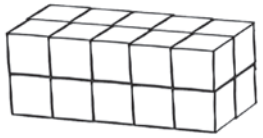
- Draw a square with sides that are 4 units long. Write the area in the square.
- Draw a rectangle with a length of 5 units and width of 3 units. Write the perimeter in the rectangle.
- Draw a shape that has an area of 9 square units. What is the perimeter of the shape?

VOLUME

Fill in the blanks.



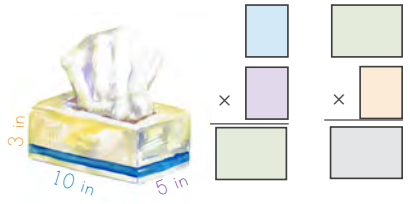
___ cubes per layer × ___ layers = ___ cubes



___ cubes per layer × ___ layers = ___ cubes

Find the volume of these objects by multiplying the length times the width times the height. Write the total volume on the line in cubic units.

_____



_____

Additional Practice

Circle the dimensions that will produce the volume indicated.

20 cubic meters

5 m × 2 m × 2 m

10 m × 5 m × 5 m

15 m × 3 m × 2 m

40 cubic inches

4 in × 5 in × 5 in

10 in × 20 in × 10 in

5 in × 8 in × 1 in

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UNIT 4 OVERVIEW

LESSONS 91-120

Extra Supplies Needed

- none

New Concepts Taught

- Algebraic Thinking
- Area: Finding the Missing Side
- Division Story Problems
- Finding Missing Factors
- Fractions of a Set
- Identifying Geometric Solids
- Identifying Triangles by Side Length
- Introduction to Division
- Multiplication and Division Fact Families
- Multiplication and Division Story problems
- Order of Operations
- Rounding to Any Place Value
- Similar Shapes

Concepts Reviewed and Expanded Upon

- Congruent Shapes
- Coordinate Plane
- Identifying Geometric Attributes
- Roman Numerals

Parent/Teacher Tip

Students are not expected to completely master all the concepts taught in Unit 4, especially toward the end of the unit. Some concepts are presented to give the student familiarity with topics that will be taught and expanded on in Math 4.

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Lesson 91

INTRODUCTION TO DIVISION

Time

Read the time on each clock in two different ways. (For example, 2:30 could be read as "two thirty" or "half past two.")

Skip Counting

- Skip count by 9s from 9 to 99.
- Skip count by 90s from 90 to 990.

Read to the child: ***Division*** is separating into equal groups or parts. Take 8 shapes from the math box. Divide them equally between you and me by passing out one shape at a time until all the shapes are gone.

How many shapes did we each get? Write a 4 in the box. Eight divided by 2 equals 4. This means that 8 shapes divided equally into 2 groups is 4 shapes in each group.

$8 \div 2 = \square$

division symbol "divided by"

Let's look at another problem. This time take 6 shapes from the math box. Pass out the shapes one at a time into 3 groups.

How many shapes are in each group? Write a 2 in the box. Six divided by 3 equals 2. This means that 6 shapes divided equally into 3 groups is 2 shapes in each group.

$6 \div 3 = \square$

Continue using the shapes to complete these division problems. The first number tells you the total number of shapes. The second number tells you the number of groups.

$9 \div 3 = \square$ $6 \div 2 = \square$

Nine-year-old twins Seth and Darius are sharing figs. This is a popular fruit in Egypt. There are 12 figs divided equally between the 2 boys.

Each part of a division problem has a specific name. The ***dividend*** is the number of items you are dividing—in this case, 12 figs. The ***divisor*** is the number of groups you are dividing into—2 groups. The ***quotient*** is the answer, or the number in each group—6 figs. Label each part with the correct term.

$12 \div 2 = 6$

Let's look at another problem. Suppose the figs must be shared among the twin boys and their younger sister, Layla. This time we need to divide the 12 figs among 3 people. Fill in the dividend, divisor, and quotient for this situation.

Seth Darius Layla

$\square \div \square = \square$

Dividend — Total figs

Divisor — Number of groups

Quotient — Number in each group

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LESSON PRACTICE

Excavating in EGYPT

Draw a line from the division term to the correct part of the division equation.

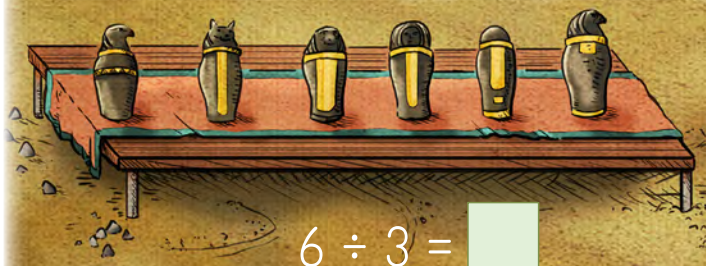
$42 \div 6 = 7$

Divisor

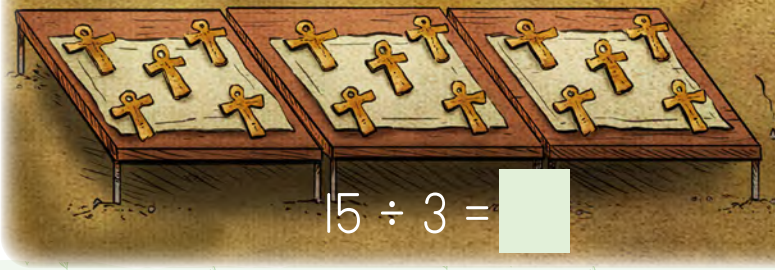
Quotient

Dividend

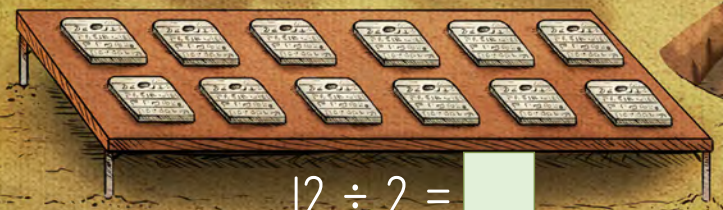
The twins' dad is an archaeology professor at a university. Help him sort the finds from the most recent dig by dividing them into equal groups.



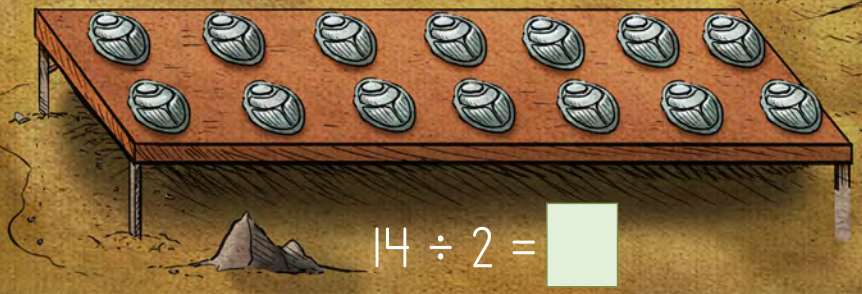
$6 \div 3 =$ ☐



$15 \div 3 =$ ☐



$12 \div 2 =$ ☐



$14 \div 2 =$ ☐

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REVIEW & ACTIVITIES

Complete these problems. Three of the animals can be found in Egypt. The animal next to the odd answer does not live in Egypt. Circle the odd answer.

crocodile

$$\begin{array}{r} 216 \\ \times \quad 7 \\ \hline \end{array}$$

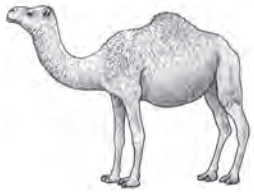
elephant

$$\begin{array}{r} 1{,}539 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 472 \\ \times \quad 3 \\ \hline \end{array}$$

cobra

$$\begin{array}{r} 5{,}048 \\ \times \quad 4 \\ \hline \end{array}$$



camel

Circle the dimensions that will produce the volume indicated.

60 cubic meters	100 cubic inches
5 m x 2 m x 2 m	4 in x 5 in x 5 in
10 m x 5 m x 5 m	10 in x 20 in x 10 in
10 m x 3 m x 2 m	5 in x 8 in x 1 in

Continue the number patterns.

−10, −9, −8, −7, _____, _____, _____, _____, _____

20, 24, 28, _____, _____, _____, _____, _____, _____

MULTIPLES MAGNET

This magnet attracts multiples of 8. Circle the multiples of 8 below.

4 8 12 14 16 20

24 28 32 36 40

42 48 54 56 64

Complete the following sets of problems by first writing the total number of cents and then writing the total amount of money using dollars and cents.

80¢ × 6 = _____¢

$_____

30¢ × 9 = _____¢

$_____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below. Draw a line to match the problem to its correct answer.

$$\begin{array}{r} 12 \\ \times \quad 6 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times \quad 9 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times \quad 5 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times \quad 7 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times \quad 8 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times \quad 4 \\ \hline \end{array}$$

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Lesson 92

MULTIPLICATION AND DIVISION FACT FAMILIES

Calendar

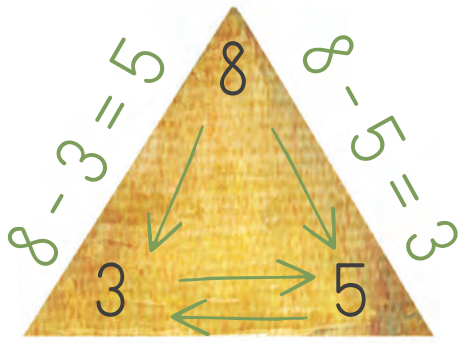
On the calendar chart, write the ordinal number for each month. For example, January is the 1st month. Then answer the questions. Which month comes before the 10th month? Which month comes after the 12th month?

Skip Counting

- Skip count by 4s from 4 to 44.
- Skip count by 40s from 40 to 440.

Read to the child: A ***fact family*** is a set of math facts that uses the same three numbers. Let's review addition and subtraction fact families. Point to the fact family to the right and read each fact aloud. What 3 numbers are used for this fact family?

$3 + 5 = 8$
$5 + 3 = 8$
$8 - 5 = 3$
$8 - 3 = 5$

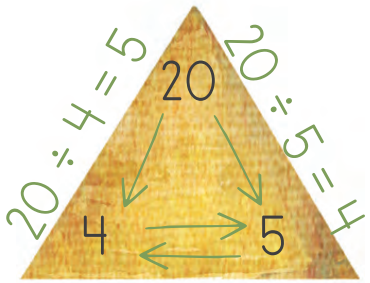


$3 + 5 = 8$
$5 + 3 = 8$

We can use a fact-family triangle to help us visualize the numbers used in the fact family. Notice how the two numbers at the bottom corners of the triangle, 3 and 5, add up to the top number, 8. The top number, 8, minus one bottom number equals the other bottom number. Every addition and subtraction fact family has this pattern.

Fact families can be used with multiplication and division facts, too. Look at the multiplication and division fact family to the right. Read each fact aloud. What three numbers are used for this fact family?

$4 \times 5 = 20$
$5 \times 4 = 20$
$20 \div 5 = 4$
$20 \div 4 = 5$



$4 \times 5 = 20$
$5 \times 4 = 20$

Look at the fact-family triangle. The product of the bottom numbers of the triangle, 4 and 5, equals the top number, 20. The top number, 20, divided by either bottom number equals the other bottom number. Every multiplication and division fact family has this pattern.

Let's look at another multiplication and division fact family. We will use the three numbers shown in the triangle below to help us complete the fact family. Remember that the product of the two bottom numbers is the top number in the triangle. What is 2 times 6? Write a 12 in the first box. What is 6 times 2? Write a 12 in the second box.

$2 \times 6 =$ ☐
$6 \times 2 =$ ☐
$12 \div 6 =$ ☐
$12 \div 2 =$ ☐

$2 \times 6 = ?$
$6 \times 2 = ?$

Remember that the top number in the triangle divided by one of the bottom numbers equals the other bottom number. What is 12 divided by 6? Write a 2 in the box. What is 12 divided by 2? Write a 6 in the last box.

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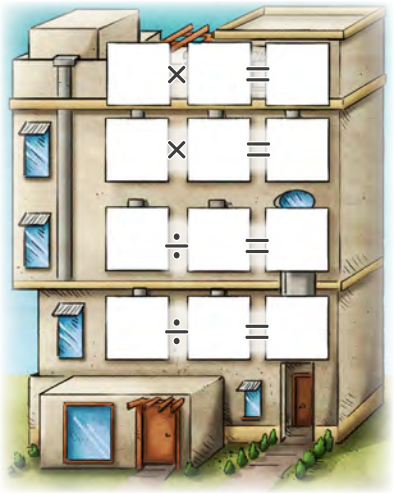
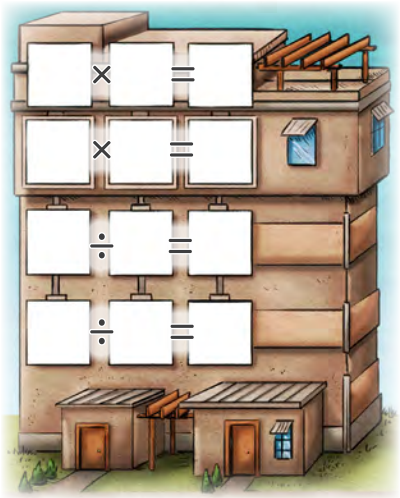
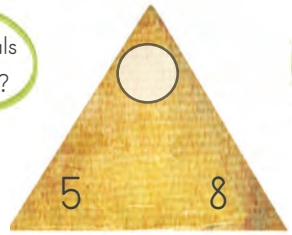
○ Guide the child in filling in the blanks to write a fact family. Now we will practice writing a multiplication and division fact family. Start by finding the product of the bottom numbers. Then divide the top number by each of the bottom numbers.



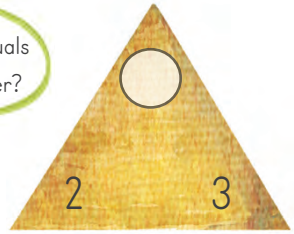


Use what you know about fact-family triangles to fill in the missing corners.

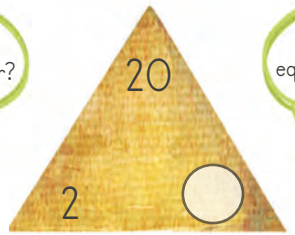
5 times 8 equals what number?



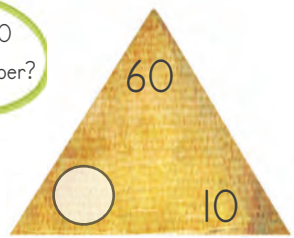
2 times 3 equals what number?



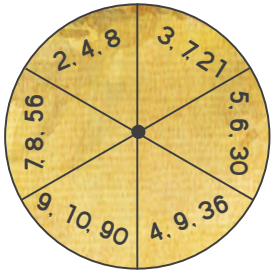
20 divided by 2 equals what number?



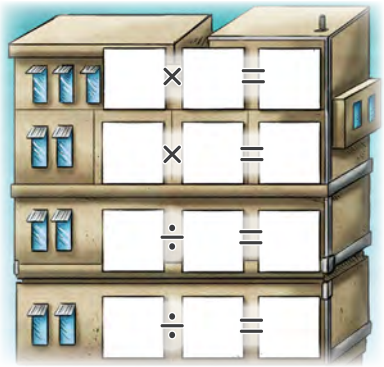
60 divided by 10 equals what number?

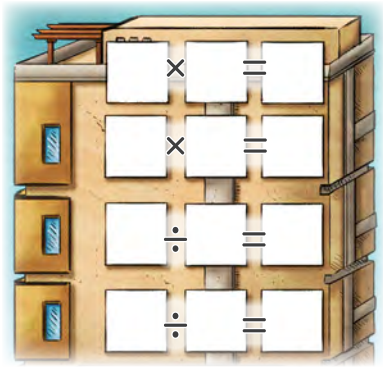


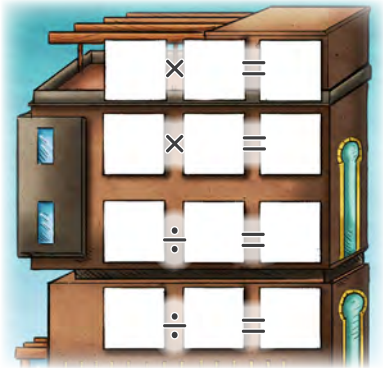
LESSON PRACTICE

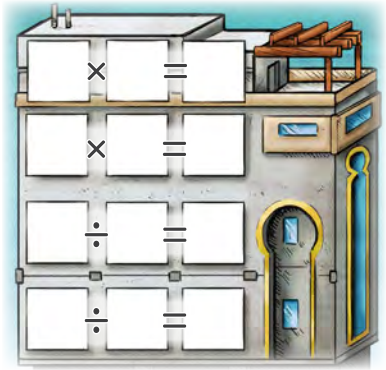


Use a pencil and paper clip to spin. Write a multiplication and division fact family by using the three numbers you land on. Complete these steps for a total of four different fact families.

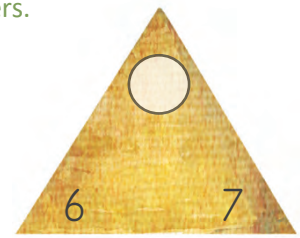


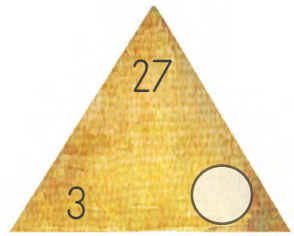






Use what you know about fact-family triangles to fill in the missing corners.





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REVIEW & ACTIVITIES

Complete the division problems.

$6 \div 3 =$ ☐

$8 \div 4 =$ ☐

$10 \div 2 =$ ☐

Fill in the missing factors for the number 24. The factors across from each other on the same part of the rainbow must have a product of 24.

Complete these problems. Three of the animals used to be found in Egypt. The animal with the odd answer has never lived in Egypt. Circle the odd answer.

hippopotamus

$$\begin{array}{r} 636 \\ \times \quad 5 \\ \hline \end{array}$$

jackal

$$\begin{array}{r} 4{,}546 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 371 \\ \times \quad 3 \\ \hline \end{array}$$

giraffe

$$\begin{array}{r} 2{,}226 \\ \times \quad 4 \\ \hline \end{array}$$

lion

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below. Draw a line to match the problem to its correct answer.

12	12	12	12	12	12
× 11	× 8	× 6	× 4	× 9	× 3

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Lesson 93

MULTIPLICATION: MISSING FACTOR

Mental Math

Multiply the following in your head and answer aloud:

8 × 8 5 × 4 1 × 5 8 × 9

Calendar

- What was the date a week ago?
- What will the date be two weeks from today?
- How many days are in 3 weeks? (7 × 3)
- How many months are in 2 years? (12 × 2)

Read to the child: A multiplication problem consists of two parts: factors and a product. Factors are the numbers being multiplied, and the product is what you get when you multiply two or more numbers together. Label the factors and product in the example below:

10 × 9 = 90

_____ _____ _____

Sometimes you will know the product of a multiplication problem, but a factor will be missing. For example, imagine you have 24 playing cards and 4 players. How many cards will each person get if the cards are split evenly? The total number of cards is 24, so that is the product. One of the factors is the number of players, which is 4. The missing factor is how many cards each player will get.

To find the answer, divide these cards into 4 equal groups. How many cards will each player get? _____

Another way to solve this problem is by using your knowledge of multiplication. We know there are four people and all of them are going to get an equal number of cards. We have 24 cards in total. The problem for our example looks like this:

4 × ☐ = 24

This tells us that the missing number can be multiplied by 4 to get 24. Did you come up with the same missing factor both times?

Read to the child: Now examine these coins below. Each is an Egyptian pound.

There are 16 coins total. Suppose you wanted to divide the coins equally between 2 people. Draw a line between the rows of coins and count how many are on each side of the line. How many coins would each person get? You can also figure this out using the problem below. Fill in the box.

2 × ☐ = 16

Suppose you wanted to divide these coins among 4 people. Draw circles around 4 equal groups of coins. How many coins are in each group? Fill in the box.

4 × ☐ = 16

We did not change the product, which is the total number of coins, but we did change the factors. Notice that you can get the same product using different factors. In our example, 2 × 8 is equal to 4 × 4 because they both equal 16. Knowing this, what is the missing factor in the problem below?

You know that 4 × 5 = 20, so what number multiplied by 10 also equals 20? Since 10 × 2 = 20, write a 2 in the box. 10 × 2 and 4 × 5 equal the same amount, so they are equal to each other.

10 × ☐ = 4 × 5

Complete this problem using the same method:

9 × 4 = 6 × ☐

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LESSON PRACTICE

This tour bus seats 48 people. There are 4 seats in each row. How many rows are there? Use the multiplication strategy. Write the known information on the lines, and then fill in the blank box with the missing factor.

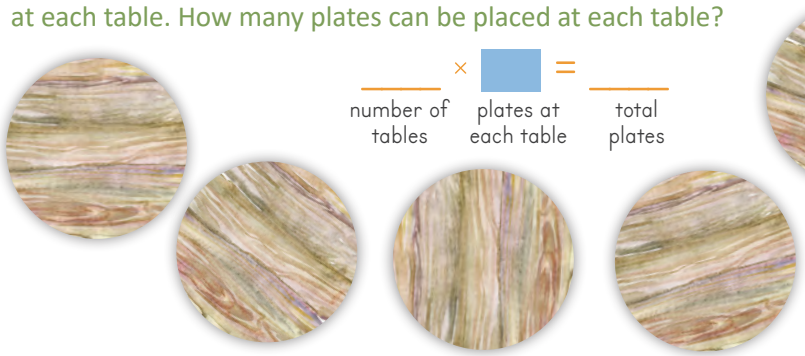
____ × ☐ = ____

seats in each row | number of rows | total seats

A restaurant is famous for its *ful medames* [FOOL MU–dom–os], an Egyptian dish made of mashed fava beans. Up to 30 people can be seated at the restaurant's 5 tables. Evenly distribute 30 plates by drawing one plate at a time at each table. How many plates can be placed at each table?

____ × ☐ = ____

number of tables | plates at each table | total plates



Darius and Seth's father worked 30 hours each week teaching university classes for two weeks in a row. One week he worked 5 days, and the other week he worked 6 days. How many hours a day did he work during week 1 if he worked the same number of hours each day? How many hours per day did he work during week 2? Use the data from the chart to fill in the problems, and then find the answers.

Employee Timesheet

	Hours Worked	Number of Days	Hours per Day
Week 1	30	5	
Week 2	30	6	

Week 1

____ × ☐ = ____

number of days | hours per day | hours worked

Week 2

____ × ☐ = ____

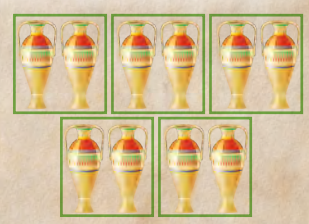
number of days | hours per day | hours worked

Multiplication Match-Ups

Write the multiplication problem beneath each picture, and then draw a line to match the problems that have the same product.

____ × ____ = ____

number of groups | flowers in each group | total flowers

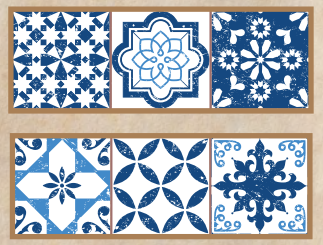


____ × ____ = ____

number of groups | vases in each group | total vases

____ × ____ = ____

number of groups | dates in each group | total dates



____ × ____ = ____

number of groups | tiles in each group | total tiles

____ × ____ = ____

number of bugs | legs on each bug | total bug legs

____ × ____ = ____

number of groups | pyramids in each group | total pyramids

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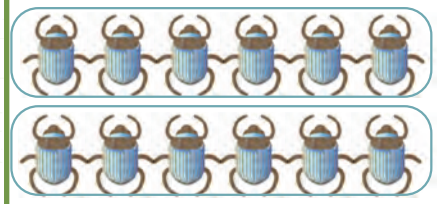
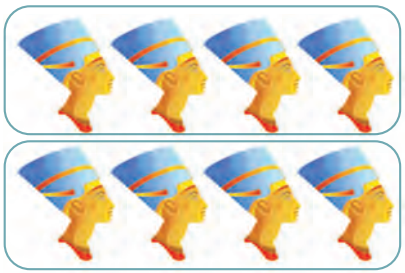
REVIEW & ACTIVITIES

Complete the division problems.



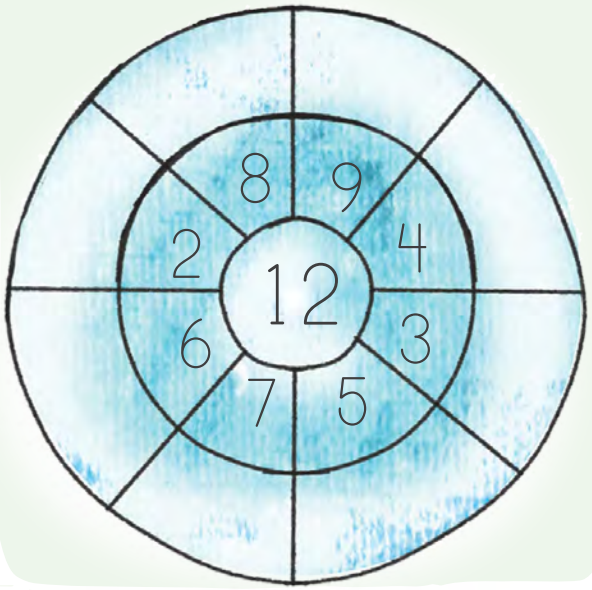
12 ÷ 2 = ☐



8 ÷ 2 = ☐

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



Complete the problems using the subtraction across zeros strategy.

$$\begin{array}{r} 4{,}000 \\ -\ 2{,}678 \\ \hline \end{array}$$

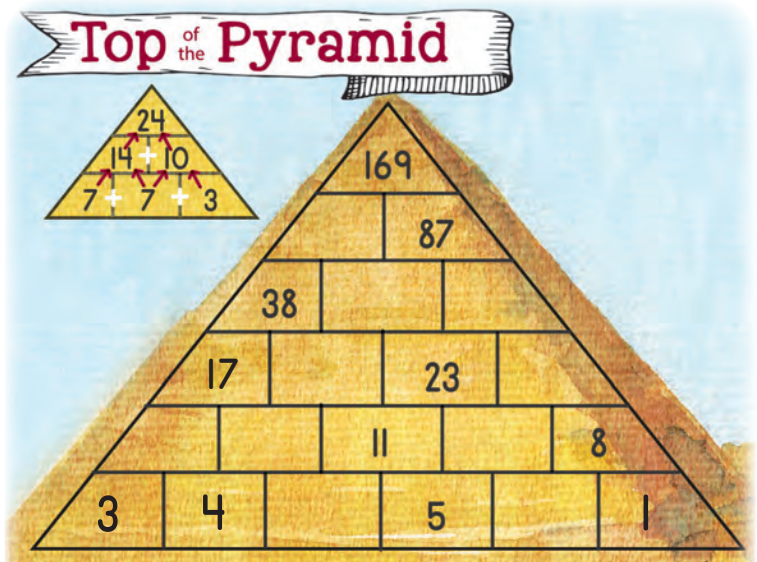
$$\begin{array}{r} 6{,}200 \\ -\ 5{,}423 \\ \hline \end{array}$$

$$\begin{array}{r} 7{,}046 \\ -\ 4{,}955 \\ \hline \end{array}$$

$$\begin{array}{r} 8{,}302 \\ -\ 5{,}423 \\ \hline \end{array}$$

Fill in the blanks in the multiplication and division fact-family houses with **(4, 6, 24)** and **(9, 7, 63)**.

Top of the Pyramid



Each number is the sum of the two numbers directly below it. See the example as needed to help you complete the puzzle and fill in all the blank parts of the pyramid.

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Lesson 94

AREA: MISSING SIDE

Mental Math

- Complete the problems aloud.

  8 × 8 5 × 4 1 × 5 8 × 9

- Think of three problems that equal 50. You can use addition, subtraction, and multiplication.

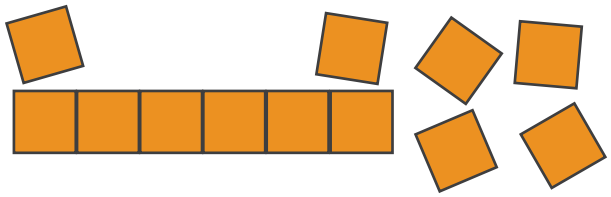
Calendar

- How many days are in 3 weeks?
- How many months are in 2 years?

Remove the tiles from the Lesson 94 page of the Appendix. Read to the child: You learned earlier that the area of a rectangle is found by multiplying the length times the width. Today, we are going to learn how to find the measurement of one of the sides.

To do this, you must know 2 of the 3 numbers involved. If you only know the length of one of the sides, but you also know the area, you can find the missing width!

Give the child 12 tile pieces. Each of these tiles represents one square unit. Let's say you have a rectangle with an area of 12 square units, and the length of one side of the shape is 6 units. Find the width of the shape. Have the child put 6 tiles in a row and then complete the rectangle by using all the remaining tiles.



What is the width of a shape with an area of 12 square units and a length of 6 units?

Give the child all 25 tiles and have him or her create rectangles using the following measurements and fill in the missing blanks.

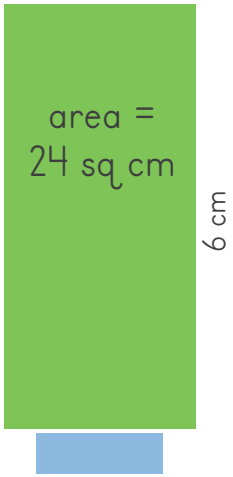
Area = 20 square units
Width = 4 units
Length = _____

Area = 25 square units
Width = _____
Length = 5 units

Area = 9 square units
Width = _____
Length = 3 units

Area = 18 square units
Width = 2 units
Length = _____

Read to the child: You can also use your knowledge of multiplication to find the missing side.



Look at this green rectangle. We know the length is 6 cm and the area is 24 square cm. Let's use the formula for area and fill in the parts we know to help us find the missing number.

area = length × width

24 sq cm = 6 cm × _____

We can see that our width needs to be a number that can be multiplied by 6 to make 24. What number is that?

Test your answer using the area tiles by gathering 24 tiles and placing 6 tiles in a row. Fill in the rest of the rectangle with the tiles. What is the width of your shape? Are your answers the same? Write the width in the blue boxes.

You can also use division to find the missing width of the rectangle. Divide your 24 tiles into 6 even groups, because the length is 6 units. How many tiles are in each group?

24 ÷ 6 = _____

The product divided by a known factor will give you the missing factor.

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LESSON PRACTICE

Egyptian cotton is famous all over the world. The climate in Egypt makes the cotton fibers longer than anywhere else, and the result is a soft, strong, high-quality fabric that is often used in bedding. Find the missing width of these folded bedsheets, and then color the sheets of the coordinating bed the same color.

Area = 49 sq ft
Length = 7 ft
Width =

Area = 8 sq ft
Length = 4 ft
Width =

Area = 18 sq ft
Length = 6 ft
Width =

Width = 2 ft Width = 7 ft Width = 3 ft

Using the tiles from the Appendix, create a square or rectangle for each of the following areas and record the missing information:

24 square units

Length: Width:

20 square units

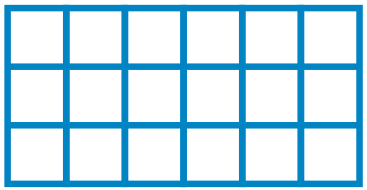
Length: Width:

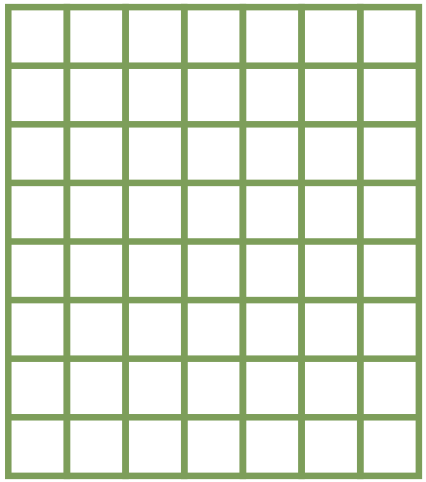
8 square units

Length: Width:

Write a multiplication problem to match each area:

area = length × width





Circle the correct width:

Area: 35 sq cm
Length: 5 cm
6 cm 7 cm 4 cm

Area: 10 sq ft
Length: 5 ft
5 ft 2 ft 9 ft

Area: 81 sq in
Length: 9 in
12 in 6 in 9 in

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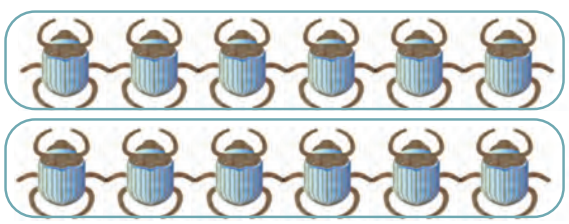
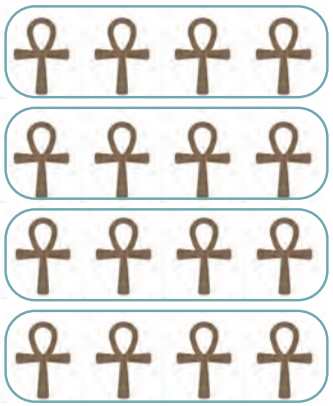
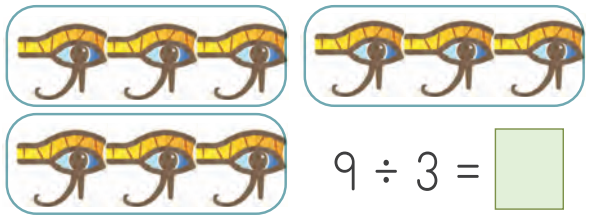
REVIEW & ACTIVITIES

Complete the division problems.



12 ÷ 2 = ☐





9 ÷ 3 = ☐

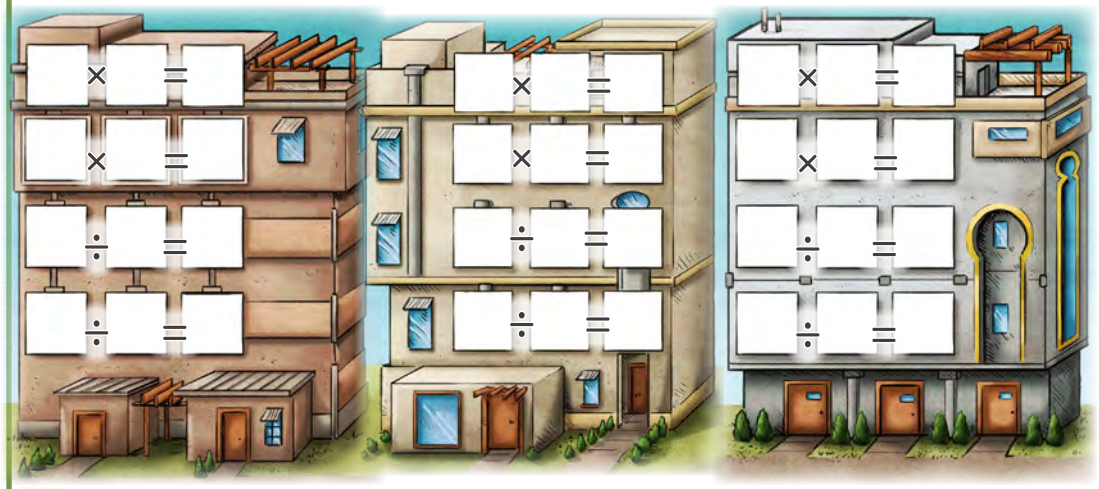
16 ÷ 4 = ☐

Fill in each box with the missing factor to complete the multiplication problem.

4 × ☐ = 16 6 × ☐ = 18 8 × ☐ = 16

5 × ☐ = 20 7 × ☐ = 21 9 × ☐ = 54

Fill in the blanks in the multiplication and division fact-family houses with **(6, 8, 48)**, **(3, 9, 27)**, and **(5, 7, 35)**.



MULTIPLES MAGNET 9

This magnet attracts multiples of 9. Circle the multiples of 9 below.

3 9 16 18 22 27 35 36 45 48

53 54 59 63 70 72 81 89 90

Fill in the missing factors for the number 16. The factors across from each other on the same part of the rainbow must have a product of 16.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12	12	12	12	12	12
× 6	× 9	× 5	× 7	× 8	× 4

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Lesson 95

WRITING AND COMPLETING DIVISION STORY PROBLEMS

Mental Math

Say each sum or difference aloud.

384 + 20 =	174 + 10 =	832 + 30 =
384 - 20 =	174 - 10 =	832 - 30 =

Skip Counting

- Skip count by 5s from 5 to 100.
- Skip count by 25s from 25 to 500.

Read to the child: Did you know there are three different ways to write a division problem? They are shown below. All of them can be read aloud as "fifteen divided by three."

$15 \div 3$	$3\overline{)15}$	$\frac{15}{3}$
division sign	division bracket	fraction bar

All three forms have the same answer. What is 15 divided by 3?

You are already familiar with the division sign and will have more practice with the division bracket and the fraction bar in future math levels; however, it is important to recognize the different ways to write a division problem.

Use three different ways to write "ten divided by two." Then find the quotient (answer) and write it on the line below.

□ ÷ □ □)□ $\frac{\square}{\square}$ Quotient ____

In a previous lesson, we learned how to use division to find the number of items in each group by passing out shapes one at a time. Now we will learn how to use division to find the number of groups when we know the number in each group.

Take 12 shapes out of the math box. Separate the shapes into groups of 4 until all the shapes are gone. How many groups are there? Write a 3 in the box. 12 divided by 4 equals 3. This means that 12 shapes divided into groups of 4 makes 3 groups.

$12 \div 4 = \square$

Take 2 more shapes from the math box. Use all these shapes to complete this division problem. The first number, the dividend, tells you the total number of shapes to use. In this example, the second number, the divisor, tells you the number of shapes to put into each group. Write the total number of groups, the quotient, in the box.

$14 \div 7 = \square$

The Cairo Tower is the tallest structure in Egypt and stands 614 feet high! Seth and Darius enjoy taking the elevator to the very top, where there is a beautiful view of the Nile River. Suppose the elevator can only take 6 people at a time. There are 18 people waiting in line. Divide to find the number of trips the elevator must make for all 18 people to make it to the top of the tower. Fill in the boxes with the numbers to represent this problem.

□ ÷ □ = □

Dividend	Divisor	Quotient
Total number of people	Number of people in one trip	Total number of trips

Write the division problem in two different ways below.

)□ | $\frac{\square}{\square}$

division bracket | fraction bar

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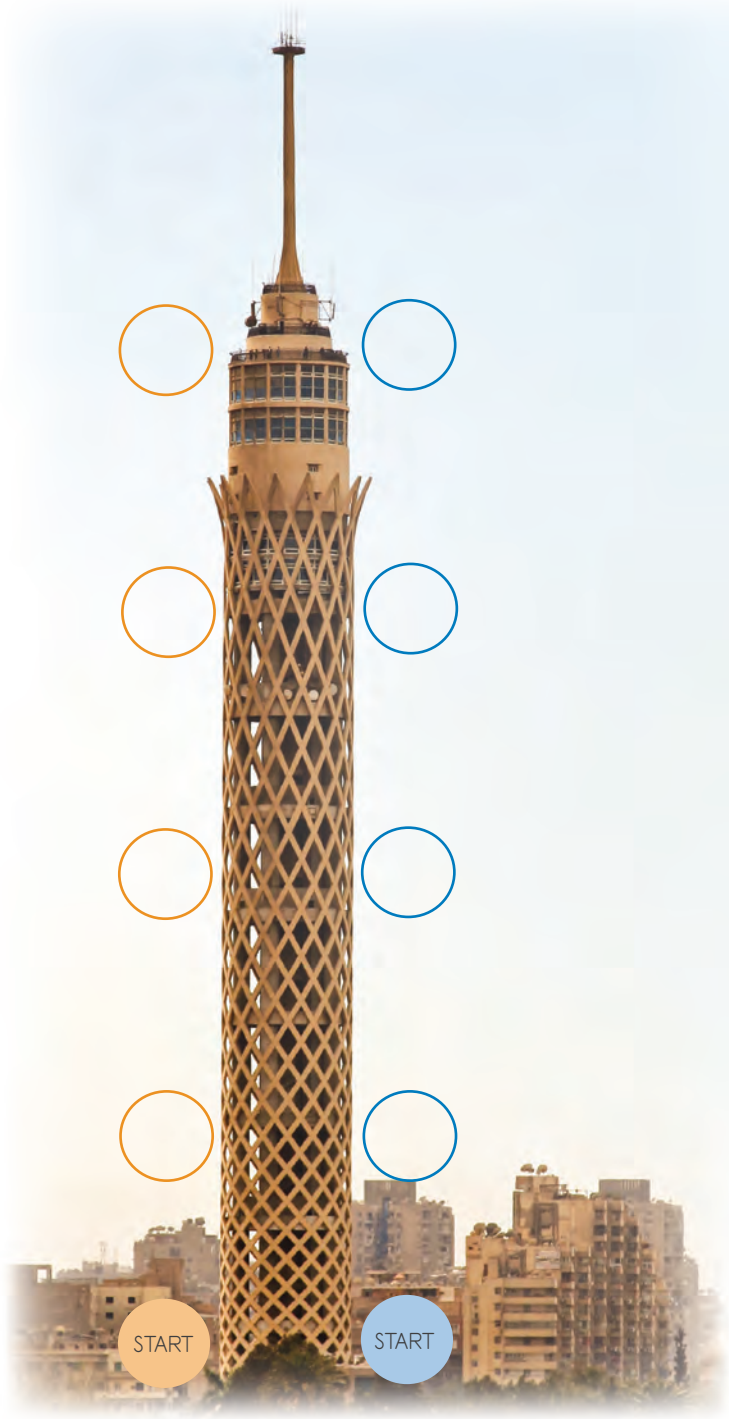

A Race to the Top!

○ Take the 10-sided dice and game pawns from the math box. Read to the child: Roll the 10-sided dice and find the story problem that matches the number rolled. Then complete the problem. If the answer is EVEN, move up one space. If it is ODD, do not move, and your turn is over. We'll take turns following these steps. The first person to reach the last circle (the top of the tower) wins the game!

1. The elevator can hold 8 people at a time. There are 32 people waiting in line. How many trips must the elevator make?
2. There are 90 people at the top of the tower. They are standing in 10 equal groups. How many people are in each group?
3. If the restaurant at the top of the tower can hold 96 people at a time and there are 12 tables that seat the same number of people, how many people would sit at each table if every table is full?
4. The bus to the tower has row seats that hold 6 people per row. The bus is full with 72 people. How many rows of seats are there on the bus?
5. There are 35 people who work at the tower. If there are different people working each of the 5 days the tower is open, how many people work each day?
6. There are 5 large binoculars to look through. There are 30 people waiting in line. How many different groups of people will take turns using the binoculars?
7. The lobby can hold 8 people at a time. There are 40 people waiting in line. How many groups will enter the building?
8. The restaurant has made 90 slices of cake. Each cake has 10 slices. How many cakes did the restaurant make?
9. There are 4 people who take 12 brochures from the lobby. They each take the same number of brochures. How many brochures did each person take?
10. A helicopter giving tours of Egypt holds 4 people at a time. There are 36 people waiting in line for a ride. How many trips must the helicopter make?

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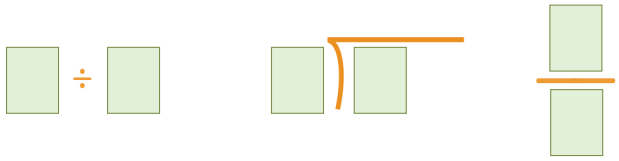
LESSON PRACTICE

Use three different ways to write "eighteen divided by six." Then fill in the blanks below.



Dividend _____ Divisor _____ Quotient _____

Find each quotient.

18 ÷ 2 = ☐ 25 ÷ 5 = ☐ 27 ÷ 3 = ☐

28 ÷ 4 = ☐ 21 ÷ 7 = ☐ 36 ÷ 9 = ☐

Solve each story problem.

Seth and Darius are sorting the 20 sticks they collected from around a park. They want to make 4 groups of sticks. How many sticks will be in each group?

☐ ÷ ☐ = ☐

Layla had a pile of 12 leaves. She put 6 in each group. How many groups of leaves did Layla have?

☐ ÷ ☐ = ☐

REVIEW & ACTIVITIES

Circle the dimensions that will produce the volume indicated.

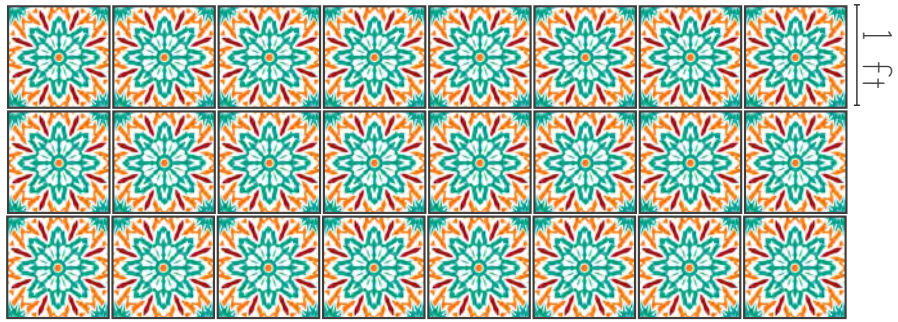
200 cubic meters	48 cubic inches
5 m x 2 m x 2 m	4 in x 5 in x 5 in
8 m x 5 m x 5 m	5 in x 2 in x 10 in
10 m x 3 m x 2 m	6 in x 4 in x 2 in

Write the numbers that come next in the number pattern.

−10, −9, −8, _____, _____, _____, _____, _____

These are the tiles on the twins' apartment balcony floor. Write and complete the multiplication problem to find the area of the balcony floor.

_____ feet × _____ feet = _____ square feet



MULTIPLES MAGNET

This magnet attracts multiples of 11. Circle all the multiples of 11 below.

1 7 11 18 22 27 33 36 44 48 51

55 59 63 66 72 77 81 88 101 110

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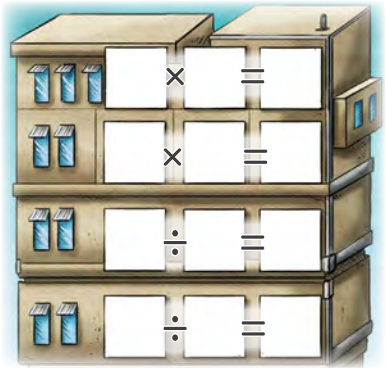
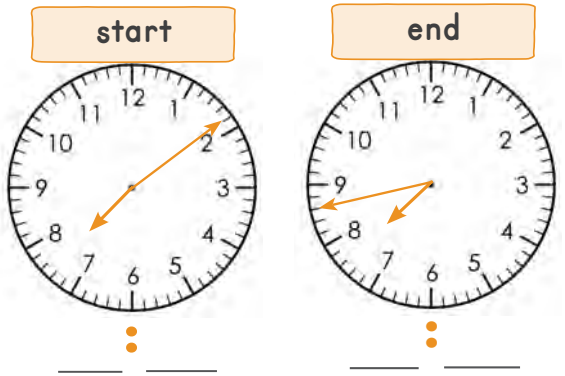
Fill in the blanks in the multiplication and division fact-family house with **(8, 5, 40)**.



Write the start time and end time, and then find the elapsed time.



Elapsed time: _____

Fill in the missing factors for the number 18. The factors across from each other on the same part of the rainbow must have a product of 18.

Write the expanded numbers in standard form in the boxes, and then complete the problems.

3,000 + 500 + 60

_____

+ 2,678

2,000 + 900 + 40 + 2

_____

+ 5,423

8,000 + 40 + 7

_____

+ 4,835

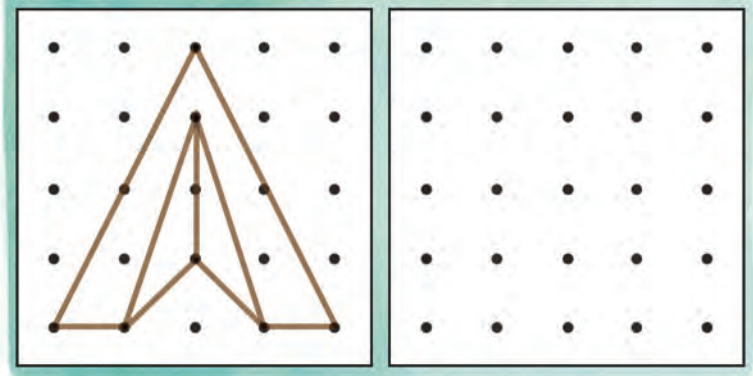
4,000 + 700 + 3

_____

+ 3,423

PEG Patterns

Use a colored pencil to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

10 × 12	3 × 12	5 × 12	7 × 12	8 × 12

12 × 6	12 × 9	12 × 5	12 × 7	12 × 8	12 × 4

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Lesson 96

LINES, LINE SEGMENTS, POINTS, AND RAYS

Multiplication

Say each answer aloud:

100 × 8 50 × 4 1,000 × 5 40 × 9

Area

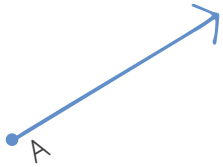
- What is the area of an object with a length of 4 inches and a width of 9 inches?
- What is the length of a rectangle with an area of 21 sq ft and a width of 3 ft?

Read to the child: Today, we will learn about points, lines, line segments, and rays. In math, a ***point*** is a specific position or location. Points are shown by drawing dots. A point is named by writing a letter next to the dot.

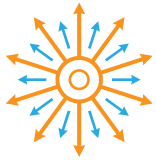
A ***line*** is a straight length that continues on forever in both directions. It is impossible to draw a never-ending line, so we draw arrows on the ends like this:

However, when we use the word "line," we usually don't mean a long, continuous line. We typically mean part of a line with a beginning point and an ending point. A ***line segment*** is part of a line that has two endpoints. A line segment is named by its two endpoints. The line segment below is named line segment AB or line segment BA.

With your finger, trace line segments AB, BC, and CD. Then trace line segments AC and BD.



A ***ray*** is part of a line that has one endpoint and an arrow showing that it continues on forever. You can remember a ray by picturing a sun's rays beginning on the surface of the sun and extending out into space forever.



Match the words to the definitions by drawing line segments between the points.

Line ·	· A specific position or location, often labeled with a letter
Line Segment ·	· A part of a line that has one endpoint and continues on forever (the arrow represents the continuation of the line)
Ray ·	· A straight length that continues on forever in both directions
Point ·	· A part of a line that has two endpoints

To measure a line segment, place the 0 mark on your ruler right at the starting point, which is the first letter of the line segment. Measure to the end point. For the following line segments, use the centimeter side of a ruler or the measuring tape from your math box. Measure the line segments and write your measurements below.

WX = _____

YZ = _____

XZ = _____

WY = _____

WZ = _____

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J

Using the inch side of your ruler or measuring tape, create the following line segments by drawing and labeling the end points on the line above.

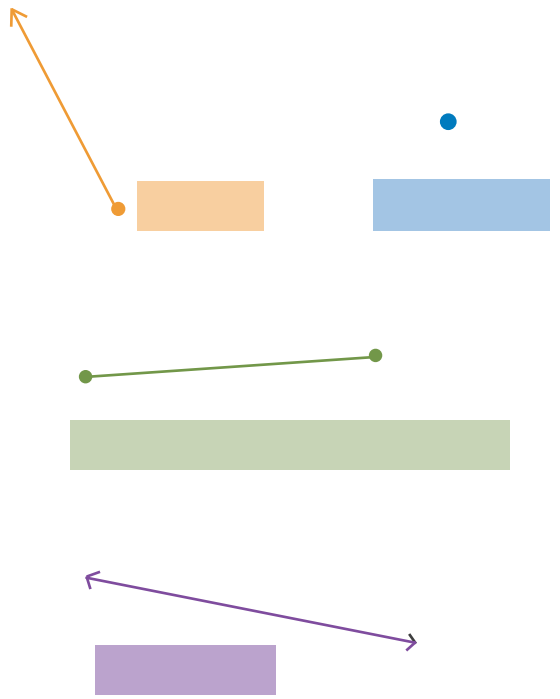
1. JN = 8 inches
2. JK = 1 inch
3. KM = 5 inches
4. JL = 4 inches

Using the points you labeled, measure these line segments in inches and fill in the blanks.

LM = ___ inches
LN = ___ inches
JM = ___ inches
KN = ___ inches

LESSON PRACTICE

Label the following figures by writing the vocabulary words from the lesson in the boxes:



Draw a line segment connecting points O and P, a line segment between points Q and R, and another line segment connecting points O and Q. Measure the length of each line segment in inches.

O
P
Q
R

OP:

QR:

OQ:

Lines IN Life

Use the vocabulary words from the lesson to label these real-life examples.

A flashlight shining into the sky:

_____

The distance from your front door to the front door of the house across the street:

_____

A pin on a map:

_____

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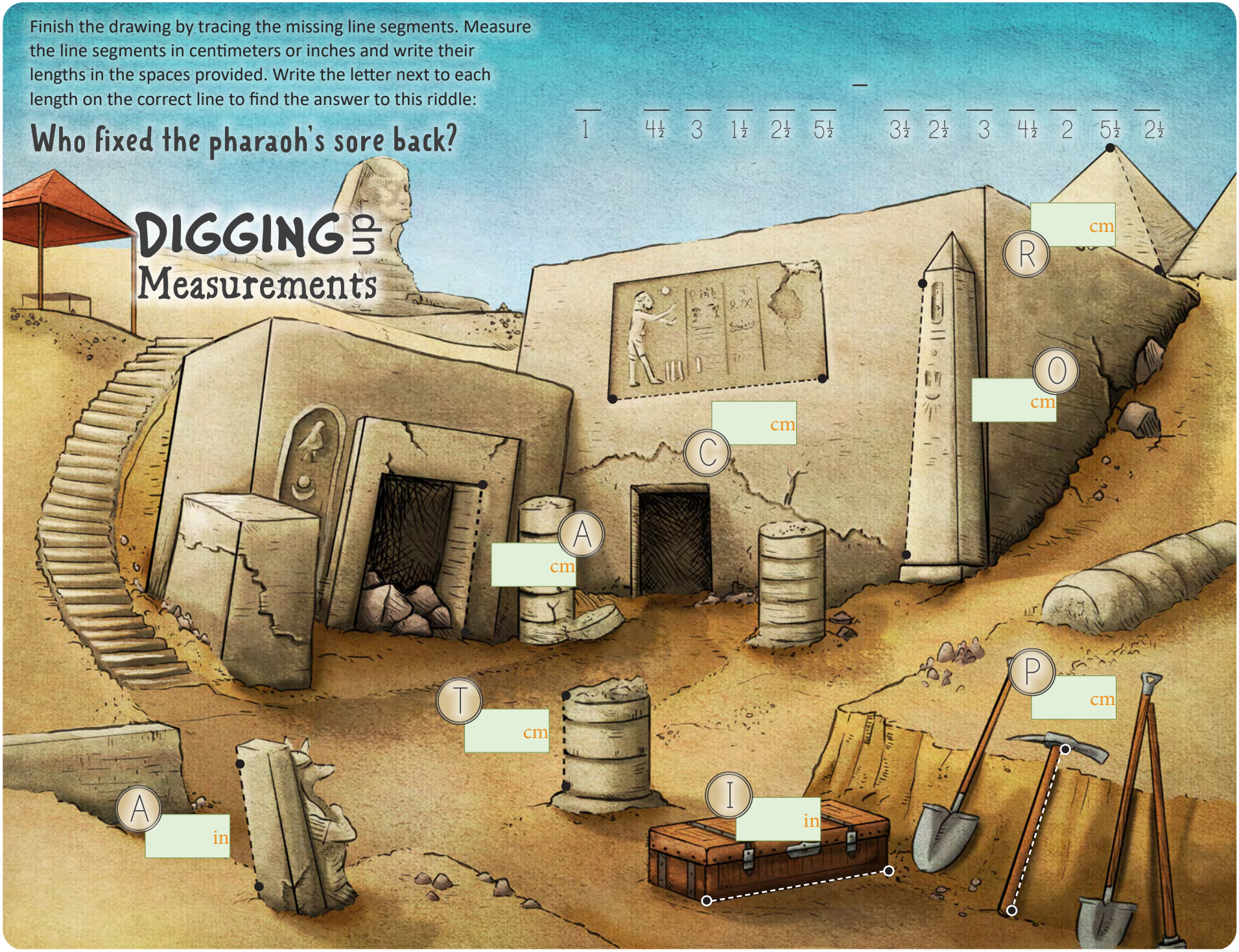
Finish the drawing by tracing the missing line segments. Measure the line segments in centimeters or inches and write their lengths in the spaces provided. Write the letter next to each length on the correct line to find the answer to this riddle:

Who fixed the pharaoh's sore back?

DIGGING up Measurements



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REVIEW & ACTIVITIES

Complete the division story problems by writing the numbers in the correct boxes and finding the quotients.

At their father's dig site, Seth, Darius, and Layla found 33 interesting rocks altogether. If they each found the same number, how many did each child find?

☐ ÷ ☐ = ☐

Dividend Divisor Quotient

Their father has tables with tools and asks the children to organize them. Each table needs to hold 7 tools. If there are 35 total tools, how many tables do they need?

☐ ÷ ☐ = ☐

Dividend Divisor Quotient

Add the mixed numbers to find how much of each fruit the twins found in the fruit basket.

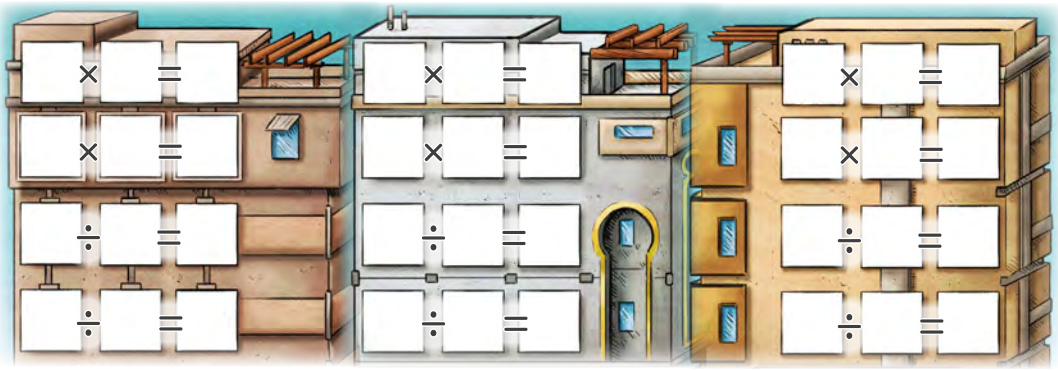
$5\frac{1}{4} + 4\frac{2}{4} =$ ☐

$2\frac{1}{5} + 2\frac{3}{5} =$ ☐

$12\frac{1}{6} + 9\frac{4}{6} =$ ☐

$2\frac{1}{3} + 3\frac{1}{3} =$ ☐

Fill in the blanks in the multiplication and division fact-family houses with **(4, 5, 20)**, **(8, 9, 72)**, and **(6, 9, 54)**.



Round each blue number to the nearest **ten** and round each green number to the nearest **hundred**. Write the answers in the boxes.

448	634	332	562
75	**81**	**889**	**227**

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below. Draw a line to match the problem to its correct answer.

12	12	12	12	12	12
× 3	× 9	× 12	× 7	× 4	× 11

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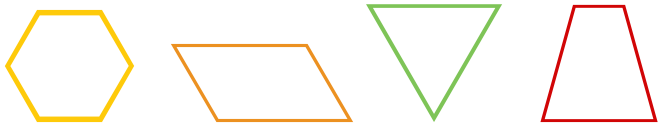
Lesson 97

DIVISION WITH REMAINDERS

Geometry

- How many sides does an octagon have? How many sides does a pentagon have?
- Say the name for each shape and how many sides it has.

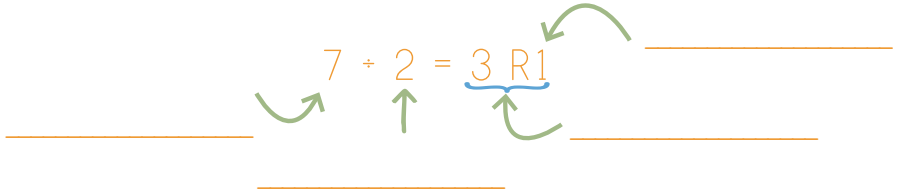


Read to the child: Sometimes when you are dividing, you cannot share the total amount equally. Look at the example below. There are 7 pieces of falafel, a popular dish in Egypt made with fava beans. Seven is not an even number, so it does not divide equally into 2 groups. How many pieces of falafel do Seth and Darius each get? Write a 3 in the green box. How many pieces are left over? Write a 1 in the blue box. The leftover amount is called the ***remainder***. It is the amount that *remains* after dividing.

$7 \div 2 = \square$ R $\square$

This means that 7 divided by 2 equals 3 with a remainder of 1. We will use a capital letter R in front of the remainder.

Let's review the vocabulary terms for a division problem. The ***dividend*** is the total number of falafel we started with, 7. The ***divisor*** is the number of groups we divided them into, 2. The ***quotient*** is the number of falafel in each group, along with any remainders, 3 with a remainder of 1. The ***remainder*** is the number of falafel left over, 1. Fill in the blanks with the correct terms.



Let's do a couple more division problems with remainders by using each illustration below. For each problem, circle the groups that contain equal amounts of falafel. In each green box, write the first part of the quotient, which is the number of pieces in the circled groups. Write the next part of the quotient, which is the remainder or leftover number, in each blue box after the R.

$14 \div 3 = \square$ R $\square$

$13 \div 2 = \square$ R $\square$

$13 \div 4 = \square$ R $\square$

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○ Read to the child: Now it's your turn to illustrate a division problem! Look at the division problem to the right. Remember from previous lessons that the divisor can represent either the number of groups or the number in each group. Let's draw 4 dots in each group to help us complete this problem. In the first rectangle, draw one group of 4 dots, and then draw another group of 4 dots. How many total dots have you drawn? You've drawn 8 dots out of the 9 total. Do you have enough left over to make another group of 4? You can't make another full group, but you need to show a total of 9 dots. In the last rectangle, draw the number of dots remaining to get from 8 to 9. Now use your illustration to fill in the answer. How many groups have an equal number of 4 dots? Write a 2 in the green box. How many leftover dots are there? Write a 1 in the blue box.

9 ÷ 4 = ☐ R ☐

○ Read to the child: Make illustrations to help you complete the division problems below. The dividend tells you the number of total dots you need to draw. This time the divisor tells you the number of dots to draw in each group. (Hint: In the first problem, keep drawing groups of 4 until you cannot make another full group. The amount left over is the remainder.)

15 ÷ 4 = ☐ R ☐

11 ÷ 2 = ☐ R ☐

8 ÷ 3 = ☐ R ☐

LESSON PRACTICE

Fill in the boxes with the correct numbers from the problem shown.

22 ÷ 5 = 4 R2

☐ Divisor

☐ ☐ Quotient Remainder

☐ Dividend

Use the illustrations of the ancient Egyptian coins to complete each division problem.

11 ÷ 3 = ☐ R ☐

13 ÷ 2 = ☐ R ☐

9 ÷ 2 = ☐ R ☐

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REVIEW & ACTIVITIES

Draw an illustration to represent each division problem. Then fill in the green and blue boxes with the answer.

13 ÷ 4 = ☐ R ☐

16 ÷ 3 = ☐ R ☐

17 ÷ 5 = ☐ R ☐

19 ÷ 6 = ☐ R ☐

Using the inch side of your ruler or measuring tape, create the following line segments by drawing and labeling the end points on the line above.

1. JN = 5 in
2. JK = 2 in
3. KM = 2 in
4. JL = 3 in

Measure these line segments in inches and fill in the blanks.

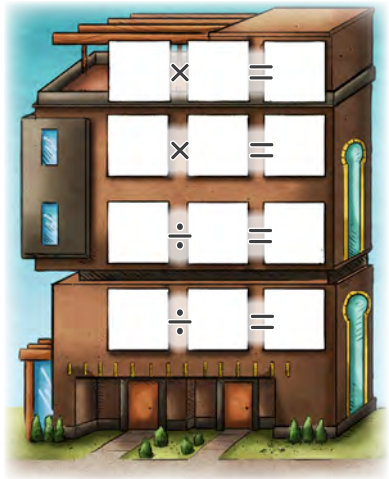
LM = ____ in
JM = ____ in
LN = ____ in
KN = ____ in

Use the formula for area and the given information to find the missing widths.

area = length × width
32 sq cm = 8 cm × ☐

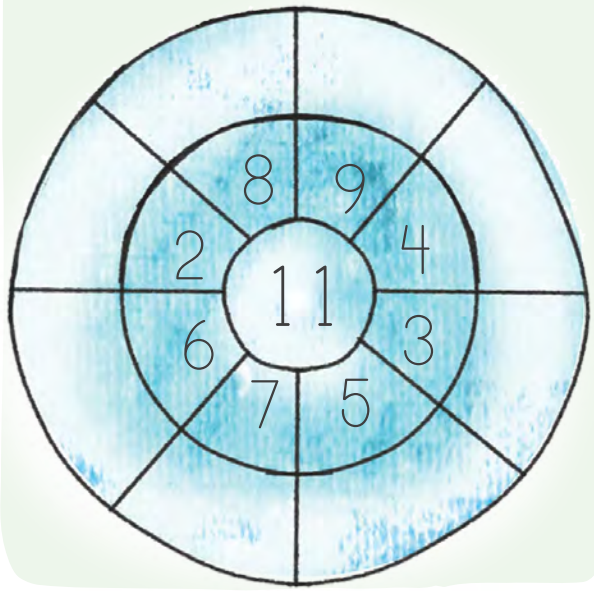
area = length × width
48 sq cm = 12 cm × ☐

Fill in the blanks in the multiplication and division fact-family house with **(6, 5, 30)**.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring. ☐



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Lesson 98

ORDER OF OPERATIONS: MULTIPLY AND DIVIDE, ADD AND SUBTRACT

Mental Math

Say each sum or difference aloud.

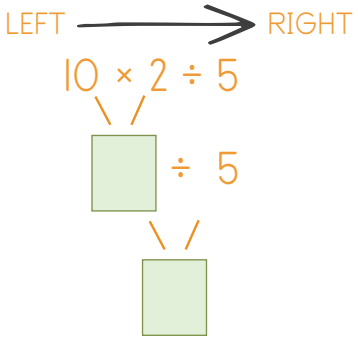
786 - 200 = 542 - 400 = 934 - 100 =

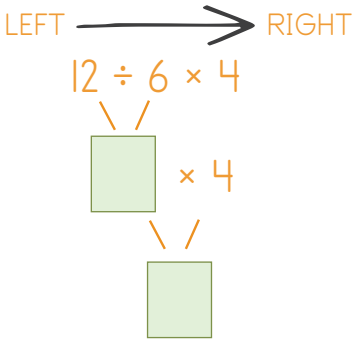
786 + 200 = 542 + 400 = 934 + 100 =

Skip Counting

- Skip count by 3s from 3 to 36.
- Skip count by 30s from 30 to 360.

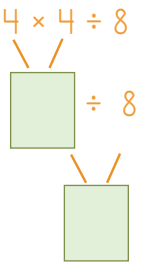
○ Read to the child: You will sometimes see more than one operation in a math problem. Point to the problem on the right. Which two operations do you see? When there are multiplication and division signs in one problem, you work from left to right. Starting from the left, we see that multiplication comes first. Multiply 10 by 2. Write the answer in the first box. The final step is to divide 20 by 5. Write the answer in the bottom box.

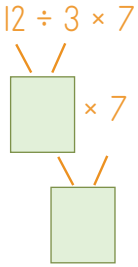




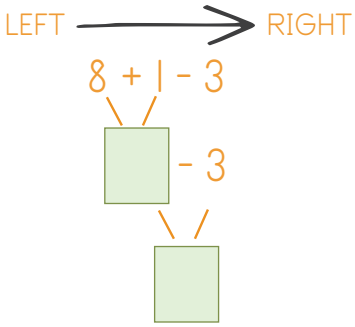
Take a look at this problem. It's similar to the first one we did, but this time the division sign is shown first when looking from left to right. Start by dividing 12 by 6. Write the answer in the first box. The final step is to multiply 2 by 4. Write the answer in the bottom box. When the two operations are ***inverse operations***, meaning they are operations that undo each other, we use the left-to-right rule.

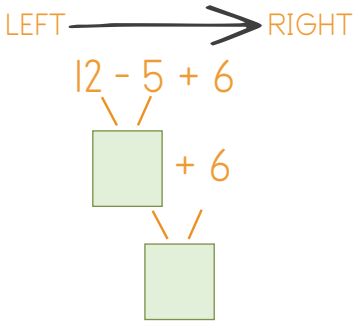
○ Guide the child through the problems below. Remember to work from left to right.





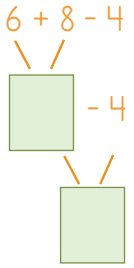
○ Read to the child: Let's look at a different type of problem with more than one operation. Point to the problem on the right. Which two operations do you see? Addition and subtraction are inverse operations, which means they are operations that undo each other, so we need to use the left-to-right rule. Start by adding 8 and 1. Write the sum in the first box. Then subtract 3 from 9. Write the difference in the bottom box.

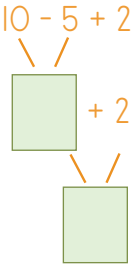




Let's do another problem. Remember, we work from left to right. This time the subtraction sign is shown first. Subtract 5 from 12. Write the difference in the first box. Then add 7 and 6. Write the sum in the bottom box. Let's complete this problem going from right to left to see how it changes our answer. First add 5 and 6. Then subtract that sum from 12. Do your answers match?

○ Guide the child through the problems to the right. Remember to work from left to right.





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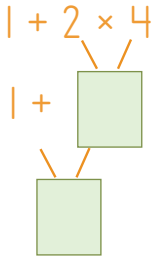
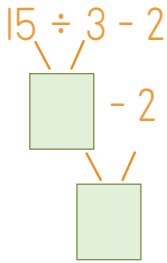
○ Read to the child: Mathematicians came up with specific steps for completing math problems with more than one operation so answers would be consistent. Imagine how confusing it would be if you worked from left to right, but I worked from right to left. We would have two completely different answers! We call these steps the ***order of operations***, and we use them when we have different operations in the same problem. The mnemonic device "Please Excuse My Dear Aunt Sally" helps us remember the order. "**M**y **D**ear" stands for **m**ultiplication and **d**ivision. It comes before "**A**unt **S**ally," which stands for **a**ddition and **s**ubtraction. It helps us remember to do the multiplication and division part of a problem BEFORE the addition and subtraction. (We will learn about the "Please Excuse" part later.)



Look at this problem. Which operations do you see? Which operation do you need to complete first? Multiply 2 by 4 and write the product in the first box. The final step is to add 1 and 8 and write the sum in the answer box.

Let's look at another problem. Which operations do you see in this problem? Use the mnemonic device to help you figure out which operation to complete first. Divide 15 by 3 and write the quotient in the first box. Then subtract 2 from 5 and write the difference in the answer box.



○ Guide the child through the problems below. Now use the order of operations to figure out which operation to complete first. Perform any multiplication or division first, from left to right. Then perform any addition or subtraction, from left to right. Use a whiteboard to complete the problems.

5 × 8 - 10 4 + 18 ÷ 6

4 × 6 - 10 + 2 8 - 4 + 15 ÷ 3

LESSON PRACTICE

Use a whiteboard to complete the problems below the chart. Write the answers in the boxes below, and then cross out the matching numbers in the grid to find the answer to the riddle.

What did ancient Egyptians use for medicine?

Starfish 9	Flowers 11	Ginger Root 5
Vegetables 2	Seeds 42	Turtle Shell 8
Oils 17	Cricket 10	Moldy Bread 30

When multiplication and division operations are in the same problem, complete those operations from left to right. Likewise, when addition and subtraction operations are in the same problem, complete those operations from left to right.

4 × 5 ÷ 2 54 ÷ 9 × 7 3 + 7 - 5 10 - 1 + 8

Use the order of operations for combinations of operations in a problem. "Please Excuse My Dear Aunt Sally" reminds us that multiplication and division operations are done before addition and subtraction.

6 × 3 - 10 1 + 2 × 4 12 ÷ 2 - 4 8 + 21 ÷ 7

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REVIEW & ACTIVITIES

Make an illustration to represent each division problem. Then fill in the green and blue boxes with the answer.

17 ÷ 3 = ☐ R ☐

16 ÷ 7 = ☐ R ☐

21 ÷ 5 = ☐ R ☐

23 ÷ 2 = ☐ R ☐

Complete the conversions.

1 ft = ____ in **1 yd = _____ ft**

2 yd = ____ ft **3 ft = _____ in**

1 yd = ____ in **3 ft = _____ yd**

5 ft = ____ in **3 yd = _____ ft**

Using the inch side of your ruler or measuring tape, create the following line segments by drawing and labeling the end points on the line to the left.

1. JL = 7 in
2. JK = 1 in
3. KM = 5 in
4. JN = 4 in

Measure these line segments in inches and fill in the blanks.

LM = ___ in
JM = ___ in
LN = ___ in
KN = ___ in

Complete the problems.

$$\begin{array}{r} 4{,}134 \\ \times \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} 8{,}312 \\ \times \quad 3 \\ \hline \end{array}$$

✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

11 × 12	4 × 12	6 × 12	9 × 12	12 × 10

12 × 6	12 × 9	12 × 5	12 × 7	12 × 8	12 × 4

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Lesson 99

ALGEBRAIC THINKING: SOLVING FOR THE MISSING NUMBER

Time

- Read the time on each clock in two different ways. (For example, 2:30 could be read as "two thirty" or "half past two.")

START TIME

END TIME

- Find the elapsed time between the start and end times.

○ Read to the child: Ancient Egyptians, along with others throughout the Middle East, developed ways to solve for missing numbers in mathematical equations. Today, we refer to this as algebra. We are going to use algebra to solve for unknown values. You have seen problems like these with missing numbers that used a symbol or a box.

+ 2 = 8

☐ + 2 = 8

Mathematicians often use letters of the alphabet to replace the symbol or box. The most common letters used are X and N. One method for finding the value of a missing number is to use the ***inverse operation***, which means the opposite operation.

Look at the addition problem. To find the missing number, we need to use the inverse operation of addition. What is the opposite operation of addition? [subtraction] Write a minus sign in the green box. We work backward beginning with the sum of 8. What is 8 minus 2? That means that N is equal to 6. Write a 6 in the blank.

N + 2 = 8 → 8 ☐ 2 =

N = ___

You can check your work by replacing N in the equation with your answer.

Check: 6 + 2 = 8 ☑

Solve these problems by using the inverse operation of addition method. Then check your work by replacing the N with your answer in the original problem. If your answer is correct, place a check mark in the box.

N + 4 = 6
6 ☐ 4 = ___
N = ___
check: ___ + 4 = 6 ☐

7 + N = 10
10 ☐ 7 = ___
N = ___
check: 7 + ___ = 10 ☐

Look at the subtraction problem in the green box. To find the missing number, we can try using the inverse operation of subtraction, but sometimes that method will not work with subtraction problems. With this problem, if we add both numbers, we would get 16, and that is incorrect. Instead, another method is to use the fact family. Around the problem in the green box above are all the facts for (10, N, 6). Which problem is the easiest to solve? Circle it, and then solve for N. Once again you can check your work by replacing the N in the equation with your answer to see if it is correct.

10 - N = 6 | 6 + N = 10
10 - 6 = N | N + 6 = 10

N = ___

Check: 10 - 4 = 6 ☑

Complete the problems in the green boxes using the fact family method.

12 - N = 3 | ___ + N = ___
___ - ___ = N | N + ___ = ___

N = ___
check: 12 - ___ = 3 ☐

N - 8 = 7

N = ___
check: ___ - 8 = 7 ☐

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To find the missing number in a multiplication problem, we can use the inverse operation of multiplication. What is the inverse operation of multiplication? [division] Write a division sign in the green box. Begin with the product, 8, and work backward. What is 8 divided by 2? Write the answer in the blank.

$N \times 2 = 8$ $\quad 8 \square 2 =$

$N = \_\_\_$

Check your work by replacing the N in the equation with your answer to see if it is correct.

Check:
$4 \times 2 = 8$ ✓

Complete these problems by using the inverse operation of multiplication.

$6 \times N = 24$
$24 \square 6 = \_\_\_$
$N = \_\_\_$
check: $6 \times \_\_\_ = 24$ ☐

$N \times 2 = 12$
$12 \square 2 = \_\_\_$
$N = \_\_\_$
check: $\_\_\_ \times 2 = 12$ ☐

To find the missing number in a division problem, we can sometimes use the inverse operation of division, but other times it won't give us a correct answer. Instead, we can use the fact family method, as we did with subtraction. To find the value of N in the equation in the green box, choose another equation from the fact family that is easier to solve. Circle it and solve it.

$16 \div N = 8$ $\quad N \times 8 = 16$
$16 \div 8 = N$ $\quad 8 \times N = 16$
$N = \_\_\_$

Check your work by replacing the N in the equation with your answer to see if it is correct.

Check:
$16 \div 2 = 8$ ✓

Solve these problems using the fact family method.

$20 \div N = 4$

$N = \_\_\_$
check: $20 \div \_\_\_ = 4$ ☐

$N \div 9 = 3$

$N = \_\_\_$
check: $\_\_\_ \div 9 = 3$ ☐

LESSON PRACTICE

ANCIENT EGYPTIAN INVENTIONS Solve for each missing number in the equations below. Circle the matching number in the grid after completing each problem. Cross out any numbers that don't have a match. All circled answers show something invented by the Egyptians.

$N \div 9 = 2$ $\quad N \times 7 = 14$ $\quad N - 26 = 32$

$15 + N = 22$ $\quad N - 10 = 75$ $\quad N \div 5 = 8$

$4 \times N = 16$ $\quad N + 9 = 12$

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REVIEW & ACTIVITIES

Make an illustration to represent each division problem. Then fill in the green and blue boxes with the answer.

19 ÷ 4 = ☐ R ☐

22 ÷ 3 = ☐ R ☐

26 ÷ 5 = ☐ R ☐

16 ÷ 3 = ☐ R ☐

Complete the problems.

2,357 × 4	3,686 × 3

Continue the pattern.

-5, -4, -3, ____, ____, ____, 1, 2, ____, ____

Write the answers in the boxes below. Cross out the matching number in the grid after completing each problem to find the answer to the riddle.

6 + 5 - 3 ☐

12 - 4 + 7 ☐

6 × 3 ÷ 2 ☐

35 ÷ 7 × 2 ☐

24 ÷ 2 - 6 ☐

8 + 20 ÷ 5 ☐

7 × 4 - 8 ☐

3 + 7 × 2 ☐

Which animal was considered sacred to ancient Egyptians?

8 zebra	6 elephant	10 wildebeest
7 cat	15 lion	17 camel
12 owl	9 jackal	20 hippo

✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

10 × 12	12 × 12	12 × 5	12 × 7	12 × 8
12 × 6	12 × 9	12 × 11	12 × 3	12 × 4

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Lesson 100

RIGHT, ACUTE, AND OBTUSE ANGLES

Division

Say the answers to the division problems aloud.

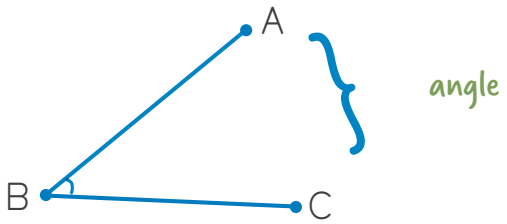
56 ÷ 8 8 ÷ 2 20 ÷ 4 63 ÷ 7

Order of Operations

Use the mnemonic device "Please Excuse My Dear Aunt Sally" to complete the problems. Answer aloud.

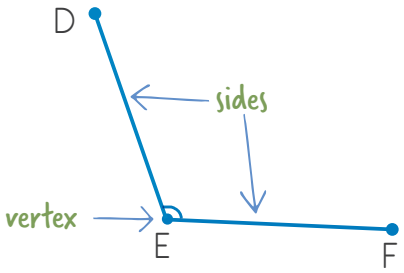
9 + 5 × 2 = 11 − 3 × 3 = 16 + 12 ÷ 4 =

○ Read to the child: Look at the line segments AB and BC. What do you notice?

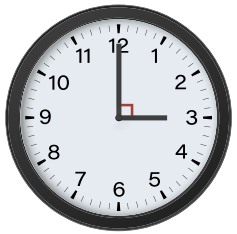


The line segments have an endpoint in common: point B. When two line segments join together, they create an angle. An ***angle*** is formed by two line segments or rays that have a common endpoint. The line segments or rays are called the ***sides*** of the angle.

These line segments DE and EF are joined at point E so they form an angle, which we can call angle E. We name the angle using the letter at the ***vertex***, which is the point where the two ends meet. Angles can be wide or narrow.



A clock is an excellent way to picture angles. The two hands of a clock make up the sides of an angle. The hands move around in a circle, and the angle is a measurement of how much of the circle is between the two sides. The ***degree*** is a unit used to measure angles, but it is a different type of degree than the one that measures temperature.



On this clock face, one hand is completely horizontal and the other is completely vertical. We call this a right angle, and it will often be marked with two little lines that form a box at the vertex. A ***right angle*** measures exactly 90 degrees.

On this clock face, the hour and minute hands are closer together than in the 90-degree angle. An angle that measures less than 90 degrees is an ***acute angle***.

This third clock shows a wide angle. The hour and minute hands are farther apart than in the 90-degree angle. An angle that measures between 90 and 180 degrees is an ***obtuse angle.***

It's important to know an angle can be in any position and can open in any direction. The clocks below show hands making angles in different positions.

Right

Acute

Obtuse

○ Remove the angle punch-out pieces from the Lesson 100 page in the Appendix. On the blank clocks, have the child draw one right, one acute, and one obtuse angle. Then have the child sort the clocks into groups of right, acute, and obtuse angles.

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A World of Angles

LESSON PRACTICE

Angles are all around us! Use different colored pencils to trace the angles in the pictures below.
Use red for right angles, blue for acute angles, and green for obtuse angles. Some images will have more than one angle.

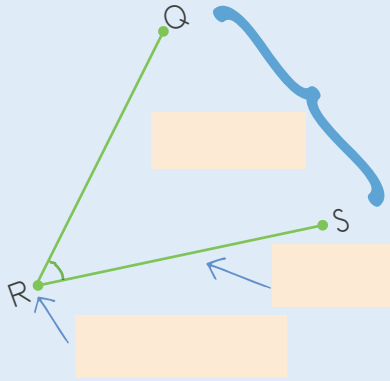
Which type of angle is found most often in the pictures above?

Acute: _____ Right: _____

Obtuse: _____

Label this image with the following:

vertex **side** **angle**



What is the letter used to name this angle? _____

Draw an **obtuse** angle with points E, F, and G. Point F is the vertex.

Draw a **right** angle with points L, M, and O. Point M is the vertex.

Draw an **acute** angle with points X, Y, and Z. Point Y is the vertex.

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REVIEW & ACTIVITIES

Make an illustration to represent each division problem. Then fill in the green and blue boxes with the answer.

16 ÷ 5 = ☐ R ☐

14 ÷ 4 = ☐ R ☐

Use the order of operations to complete the problems, using a whiteboard if needed. Write the answers in the boxes below.

8 + 4 - 5 ☐

12 - 4 + 7 ☐

8 × 3 ÷ 2 ☐

36 ÷ 9 × 2 ☐

20 ÷ 2 - 5 ☐

8 + 24 ÷ 4 ☐

Solve the equations. Then write the answers in the boxes below to find the population of modern Egypt in 2020.

N × 9 = 27 N = ☐

18 + S = 22 S = ☐

4 × Q = 8 Q = ☐

X + 11 = 12 X = ☐

13 - M = 9 M = ☐

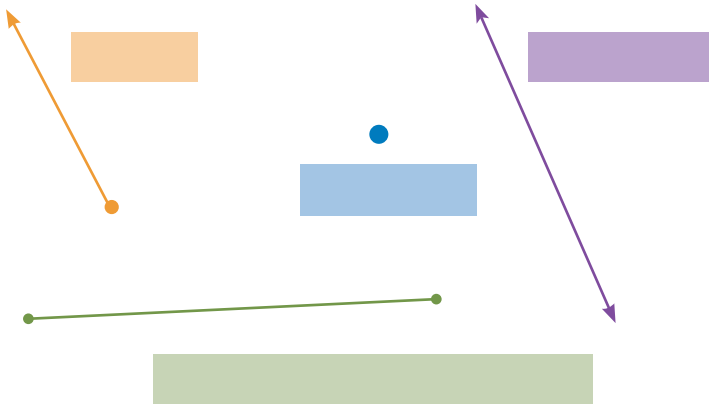
9 ÷ K = 3 K = ☐

24 ÷ Y = 6 Y = ☐

X		Q	K	N	S		Y		M
	0	,			,		0		

Write the names of the following items in the correct boxes.

Word bank: line segment, line, ray, point



✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

11 × 12	4 × 12	12 × 6	12 × 9	12 × 3

12 × 6	12 × 2	12 × 5	12 × 7	12 × 8	12 × 4

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Lesson 101

ORDER OF OPERATIONS: PARENTHESES

Mental Math

Complete the problems, adding the numbers in your head and answering aloud.

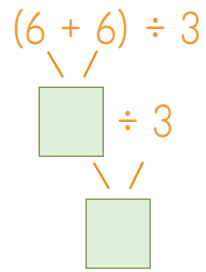
3 + 5 + 8 = 2 + 4 + 3 = 7 + 3 + 5 =

Temperature

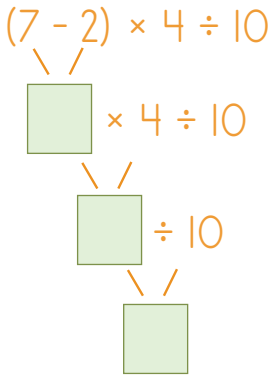
Complete the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your home.

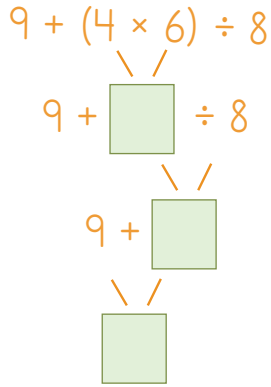
○ Read to the child: In a previous lesson, you learned about the order of operations. We used the mnemonic device **P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally to help us remember to multiply and divide (from left to right) before we add and subtract (from left to right). Today, we will discover another part of the phrase as we continue to learn the steps in the order of operations. The "P" in "Please" stands for ***parentheses***. They look like this **( )**. The word "Please" comes first, so we must perform any operation in parentheses first. Parent/Teacher Note: The word "E" for "Excuse," which represents exponents, will be covered in future levels.

Let's look at an example. Which two operations do you see in the problem? Normally, we would do division before addition. However, in this case, there is an addition problem in parentheses, so we need to do that problem first. What is 6 plus 6? Write a 12 in the first box. Perform the last step by dividing 12 by 3, and then write the final answer in the bottom box.



Let's take a look at another problem. Point to the problem inside the parentheses. This is where we begin. What is 7 minus 2? Write a 5 in the box. Which two operations do you see remaining? How do we know which one to complete first? We work from left to right. What is 5 times 4? Write a 20 in the box. The last step is to divide 20 by 10, and then write the final answer in the box.





We will work one more problem together. Which operation is shown in the parentheses? [multiplication] What is 4 times 6? Write 24 in the box. Which operation should we perform next, addition or division? Refer to the mnemonic device if needed. What is 24 divided by 8? Write a 3 in the box. Perform the last step, 9 plus 3, and then write the final answer in the box.

○ Guide the child through the problems below. Remember to complete the work within the parentheses first. Use the mnemonic device if needed.

(10 - 5) × 3 40 ÷ (4 + 4) 15 - (18 ÷ 3) × 2

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LESSON PRACTICE

Complete each problem by using a whiteboard. Write the letter in each box on the line below with a corresponding answer to answer the riddle.

What is the most popular sport in modern Egypt?

3	10	10	7	2	4	5	5

(Note: This sport is often referred to as soccer in the United States.)

REVIEW & ACTIVITIES

Complete each division problem.

15 ÷ 3 = ___ 24 ÷ 8 = ___ 32 ÷ 4 = ___

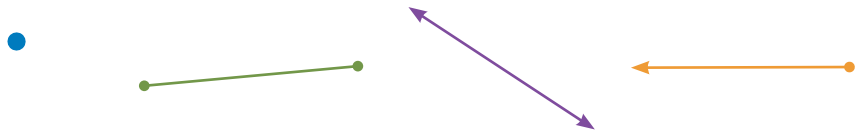
35 ÷ 5 = ___ 36 ÷ 6 = ___ 12 ÷ 3 = ___

The division facts above are hidden in the chart below. Find the facts, circle them, and write the division and equal signs. Facts can be horizontal, vertical, or diagonal.

9	9	81	12	6	4	32
24	32	6	3	1	0	4
0	8	2	6	4	2	8
35	1	3	56	36	15	34
2	5	12	36	9	3	81
0	1	7	6	8	5	64
35	5	4	6	12	3	4

Draw a line segment from each image to its name.

Line Ray Point Line Segment



© Jenny Phillips

Solve the equations. Any letter can be used in place of a missing number.

N × 8 = 24	N =	14 - M = 6	M =
20 + S = 25	S =	15 ÷ K = 3	K =
3 × Q = 9	Q =	54 ÷ Y = 6	Y =
12 + P = 18	P =	17 - X = 5	X =

Story problem Puzzle

Write the letter of the story problem next to the matching work, and then complete.

A Seth and Darius are helping to paint the lines around a section of their football field. The section is 15 feet wide and 25 feet long. How many feet will they paint?

☐ 20 ft × 10 ft = _____ sq ft

B Layla is visiting her father's dig site. The roped-off rectangle to dig is 20 feet long and 10 feet wide. What is the total area of the dig site?

☐ 12 ft + 14 ft + 12 ft + 14 ft = _____ ft

C For New Year's Eve, Seth, Darius, and Layla are stringing lights around their living room. The room is 12 feet wide and 14 feet long. How many feet of lights do they need?

☐ 15 ft + 25 ft + 15 ft + 25 ft = _____ ft

Continue the number patterns.

95, 85, 75, 65, _____, _____, _____, _____, _____

20, 21, 23, 26, _____, _____, _____, _____, _____

Fun Finds

Find two of each type of angle in the area around you and draw what you find.

Right Angles:

Acute Angles:

Obtuse Angles:

✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12	12	12	12	12	12
× 12	× 3	× 5	× 2	× 8	× 1
____	____	____	____	____	____

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Lesson 102

TYPES OF LINES

Multiplication

If you know 9 × ⬟ = 54 and 6 × ★ = 54, then

54 ÷ ★ = _____ and 54 ÷ ⬟ = _____.

Area

- What is the length of a rectangle with an area of 21 sq ft and a width of 3 ft?
- What is the area of a rectangle with a length of 4 inches and a width of 9 inches?

○ Read to the child: Today, we will continue to learn more about lines. First, let's review the orientation of lines, which is a fancy way of saying the direction. If a line runs straight up and down, it is called a ***vertical line***. If it runs left to right, like the horizon, it is a ***horizontal line***.

Some lines are not vertical or horizontal; instead, they are slanted. These lines are called ***oblique lines*** or diagonal lines. Here are some examples:

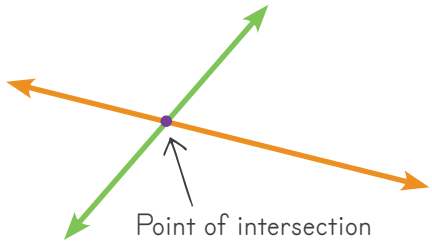
Draw an example of vertical, horizontal, and oblique lines in the boxes.

VERTICAL

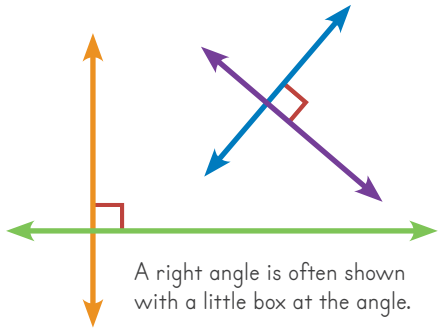
HORIZONTAL

OBLIQUE

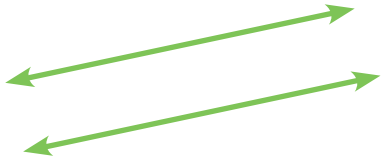
○ Read to the child: Lines that cross each other at exactly one point are called ***intersecting lines***. The point where the lines cross is called the ***point of intersection***.



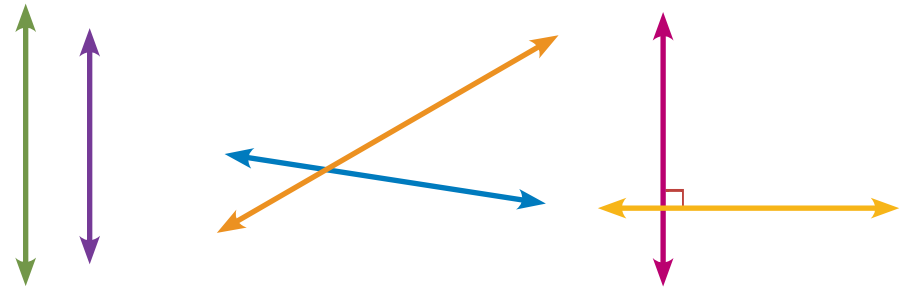
Lines that intersect at right angles are called ***perpendicular lines***. Horizontal and vertical lines are perpendicular, but oblique lines can be perpendicular to other oblique lines as well. Look around the room you are in. Do you see any examples of perpendicular lines?



Lines that never intersect and are always the same distance apart are called ***parallel lines***. They can be oriented in any direction, whether vertically, horizontally, or diagonally, and they must always remain the same distance apart. What parallel lines do you see around you?



Label the pairs of lines as "intersecting," "perpendicular," or "parallel." Place a dot where the lines intersect, if they intersect.



_____ _____ _____

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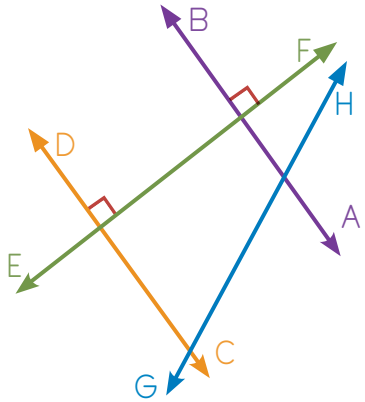
Examine the lines below and fill in the correct answers from the word bank. Words can be used more than once.

intersecting **perpendicular** **parallel**



Line AB and line CD are _____.

Line EF and line CD are _____ and _____.

Line AB and line GH are _____.

Line CD and line GH are _____.

Circle the correct answer.

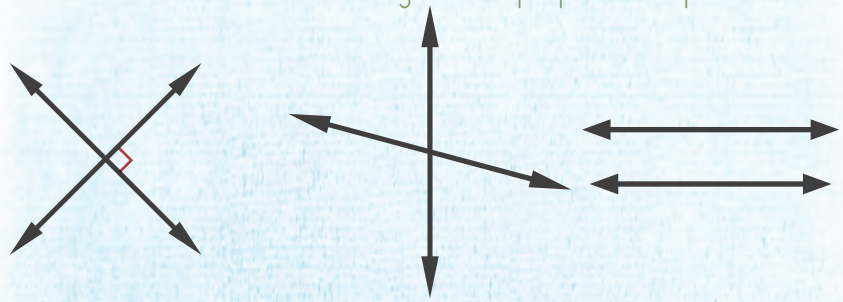
Are line EF and line GH parallel? **yes** **no**

There are different types of lines all around us. Using orange, green, blue, and red colored pencils, complete the exercises below.

1. Trace over an oblique line in orange.
2. Trace over two parallel lines in red.
3. Make a dot at two different intersections using blue.
4. Trace over a horizontal line using green.

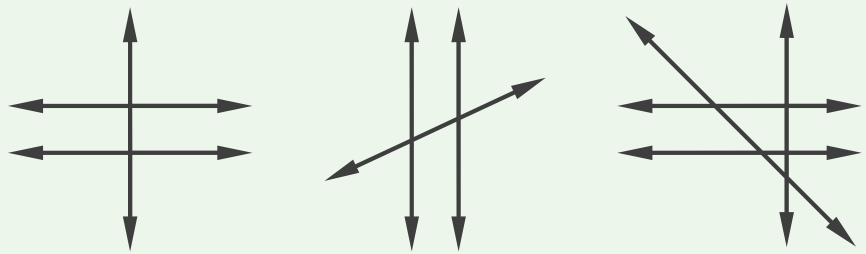
LESSON PRACTICE

Draw lines to connect the image to the proper description.



perpendicular **parallel** **intersecting**

Circle the types of lines that are shown in each image.



perpendicular
parallel
intersecting

perpendicular
parallel
intersecting

perpendicular
parallel
intersecting

Write the letters that contain the types of lines below in the correct column. (Hint: Some letters belong in more than one column.)

A, E, F, H, K, M, N, T, V, W, X, Y, Z

Perpendicular	Parallel	Oblique

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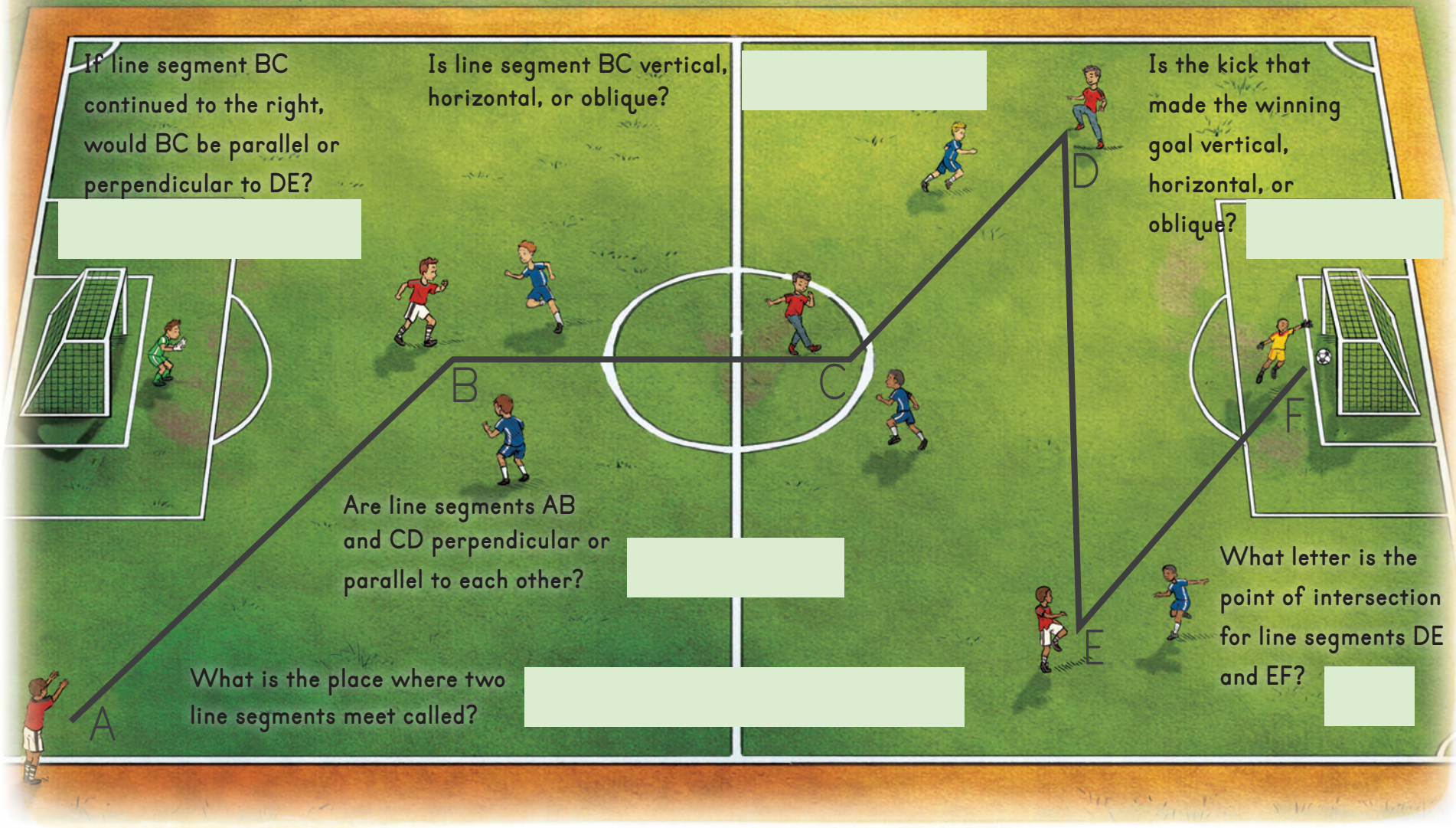
PASS the Ball

Seth and Darius love to play football (called soccer in the US) and have made great friends with their team members. During a recent game, the team made a series of passes that led to the game-winning goal! Below is a diagram of their passing play. Look at the line segments and answer the questions.

vertical horizontal oblique point of intersection parallel perpendicular


If line segment BC continued to the right, would BC be parallel or perpendicular to DE?
Is line segment BC vertical, horizontal, or oblique?
Is the kick that made the winning goal vertical, horizontal, or oblique?
Are line segments AB and CD perpendicular or parallel to each other?
What is the place where two line segments meet called?
What letter is the point of intersection for line segments DE and EF?
A
B
C
D
E
F

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REVIEW & ACTIVITIES

Complete the problems.

63 ÷ 9 × 2 = ☐

(2 + 6) - 5 = ☐

(4 - 1) × 8 = ☐

4 × 5 - 10 = ☐

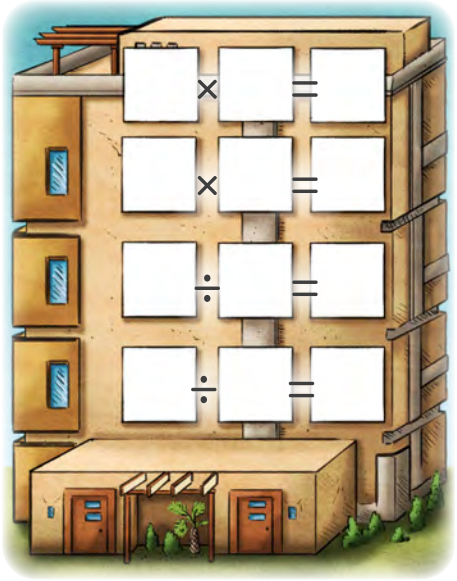
3 + 2 × 6 = ☐

16 ÷ (3 - 1) = ☐

4 + 36 ÷ 4 = ☐

Write the missing factors for the number 40.

Fill in the blanks in the multiplication and division fact-family houses with **(7, 8, 56)** and **(6, 9, 54)**.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12 × 11	12 × 8	12 × 6	12 × 4	12 × 9	12 × 3
12 × 12	12 × 7	12 × 5	12 × 2	12 × 0	12 × 1

Using a ruler, measure the line segments below in inches.

ML = ___ in JM = ___ in NL = ___ in KN = ___ in

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Lesson 103

ROUNDING TO ANY PLACE VALUE

Skip Counting

Practice these items with the child.

- Skip count by 4s from 4 to 48.
- Skip count by 1,000s from 1,000 to 10,000.

Read to the child: Let's review rounding to the nearest ten. Look at the number line below. The number 51 is between 50 and 60. It is closer to 50 than 60, so 51 becomes 50 when rounded to the nearest ten. Is 58 closer to 50 or 60? It rounds up to 60 when rounded to the nearest ten.

Have the child draw an arrow from 51 to 50 and from 58 to 60.

If the digit to the right of the place you are rounding to is 0, 1, 2, 3, or 4, round down. If it is 5, 6, 7, 8, or 9, round up.

Let's round this number to the nearest hundred. When we round we always look at the place value to the right of the one we want to round to. If that digit is five or greater, the digit in the place value we are rounding to increases by one, and all digits to the right of it become zeros. This is called rounding up. If the digit to the right of the place value we are rounding to is four or less, that digit stays the same and all digits to the right of it become zeros. This is called rounding down. Any digits to the left of the place value we are rounding stay the same.

2,349 → 2,300

Read to the child: Camels are found throughout Egypt, and they are well adapted to Egypt's desert climate. With little water available, a camel can go a week to ten days without water. When water is available, a thirsty camel can drink 53 gallons in three minutes! In one year a camel can drink 18,467 gallons. About how many thousands of gallons is that? In order to find an approximate number of thousands, we can round to the nearest thousand. That's about 18,000 gallons!

18,467 → 18,000

Let's practice rounding to different place values. Color the place value and digit the same color as the place value being rounded to below. Using the rounding rules above, determine if the number will round up or down. Then write the rounded numbers in the boxes. The first one is done for you.

Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	2	5,	6	3	8,	1	2	5

Hundreds	1	2	5,	6	3	8,	1	0	0
Millions			,			,			
Ten Thousands			,			,			
Hundred Millions			,			,			
Ten Millions			,			,			

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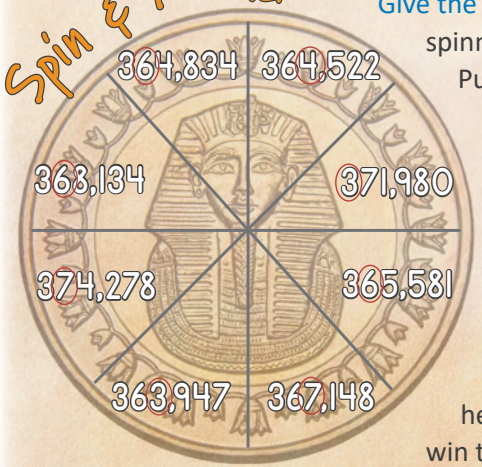
Ready, Set, Round!

○ Game: Take the 10-sided and 6-sided dice from the math box. Read to the child: Roll both dice to create a number. For example, if you roll a 7 and a 2, you can choose to create the number 72 or 27. Round the number to the nearest TEN and claim the space with the answer by writing an X in the space. Then it's my turn. I'll follow the same steps, but I'll write an O to claim a space. If the rounded number is already claimed, then we do not get to mark a space. The person to capture the most spaces wins. If we roll a 10, we roll that dice again.

60	20	70
40	10	50
90	30	80

Spin & Round



Give the child the paper clip. Create a spinner using a paper clip and a pencil. Put the tip of the pencil through the looped end of the paper clip and set the pencil tip in the middle of the coin. Flick the paper clip to spin. Round the number to the PLACE VALUE CIRCLED. Then it's my turn. Whoever has the greater number wins that round and puts a check mark in his or her box below. The first person to win three rounds is the winner.

Student ☐ ☐ ☐

Parent/Teacher ☐ ☐ ☐

LESSON PRACTICE

Help the camel get a drink. Draw a line from each number to the bucket with the number rounded to the circled place value.

341,643,781 341,648,325 341,639,218 341,642,765

341,640,000 300,000,000 340,000,000 341,600,000

Circle the correct answers.

1. Round 645,089,120 to the nearest **hundred million**.

600,000,000 700,000,000

2. Round 561,765,982 to the nearest **hundred thousand**.

561,700,000 561,800,000

Round each number to the nearest **ten thousand.** Write the answer in the box.

456,346 ☐ 843,901 ☐

728,934 ☐ 304,223 ☐

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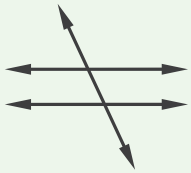
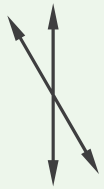
REVIEW & ACTIVITIES

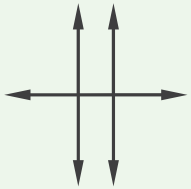
Circle the types of lines that are shown in each image below.



perpendicular
parallel
intersecting



perpendicular
parallel
intersecting



perpendicular
parallel
intersecting

Camels, like many animals, are often given salt blocks to lick. Find the volume of each salt block by multiplying the length times the width times the height. Write your final answer in the gray box.

Fill in the box with the missing factor to complete each multiplication problem. Then write the letter (next to each problem) in the blank space above the matching answer below.

B $2 \times \square = 16$

R $6 \times \square = 24$

C $2 \times \square = 18$

A $4 \times \square = 20$

I $3 \times \square = 21$

What is the official language of Egypt?

س ش ج

5	4	5	8	7	9

Complete the division problems.

$14 \div 2 = \square$ $16 \div 4 = \square$ $15 \div 5 = \square$

$12 \div 3 = \square$ $18 \div 3 = \square$ $18 \div 9 = \square$

Write the missing factors for the number 28.

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12	12	12	12	12	12
× 6	× 9	× 5	× 7	× 8	× 4

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Lesson 104

ORDER OF OPERATIONS AND MULTIPLYING MONEY

Mental Math

Find the sums and answer aloud. (Hint: Add the numbers that equal 10 first.)

4 + 9 + 6 = 2 + 4 + 8 = 7 + 3 + 6 =

Skip Counting

- Skip count by 5s from 100 to 150.
- Skip count by 50s from 1,000 to 2,000.

Read to the child: You have already learned how to multiply large numbers by a single-digit factor. Multiplying money follows the same steps. Look at the problem shown. We will multiply as usual and ignore the decimal point for now. We begin by multiplying 3, the bottom factor, by the digit on the right in the top factor, 2. Write the product of 3 and 2 at the far right under the line. Next, we multiply the bottom factor, 3, by the next digit in the top factor, 1. Write the product of 3 and 1 next to the 6 under the line. Now we multiply the bottom factor, 3, by the next digit in the top factor, 7. Write the product of 3 and 7 under the line. The last step is to write a dollar sign in front of your answer and count over two places from the right and write a decimal point to separate the dollars and cents. Write a dollar sign and decimal point where the arrows are pointing. The final answer is twenty-one dollars and thirty-six cents.

$7.12
× 3

Write a dollar sign here.

Write a decimal point here.

Guide the child through the problems below. Find each product. Remember to include a dollar sign and decimal point in your answer.

$5.44 × 2 = ____

$2.16 × 4 = ____

$1.32 × 7 = ____

Read to the child: Did you know we can use the order of operations and multiplying money to help us solve everyday problems? Let's take a look at a few examples where these concepts can be applied.

Mom is planning a birthday party for Darius and Seth. She purchased 6 invitations and 6 stamps. Invitations cost $0.89 each, and stamps cost $0.55 each. Instead of multiplying each cost by 6 and then adding the costs together, you can first add the two costs and then multiply the total by 6. The problem below represents this situation. Complete the problem to find the total cost of the invitations and stamps. Remember that problems in parentheses are completed first. Help the child to complete the problem, using a whiteboard to add and multiply, and then write the answers in the boxes below.

($0.89 + $0.55) × 6

× 6

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Let's look at another example. Mom bought 2 birthday cakes, one for Darius and one for Seth. Each cake costs $12.50. She has a coupon for $5.00 off. The problem to the right represents this situation. Find the total amount Mom spent to buy the cakes.

($12.50 × 2) - $5.00

□ - $5.00

□

$50.00 - ($4.25 × 8)

$50.00 - □

□

We will work on one more problem together. Mom ordered a tray of 8 sub sandwiches for the guests. Each sandwich cost $4.25. She paid with a $50 bill. Complete the problem to find how much change Mom received.

○ Guide the child through the problems below. Circle the problem that best represents each story problem. Then complete the problem, using a whiteboard to show your work.

The party favors cost $1.75 each. There are 4 boys and 5 girls attending the party. Which problem can be used to find the total amount of money needed to purchase a party favor for each child?

Ⓐ $1.75 × (4 + 5)

Ⓑ ($1.75 + 4) - 5

Darius and Seth's grandmother gave them $70 for their birthday gift. After they tithed $10, they divided the rest of the money equally between the two of them. Which problem can be used to find the answer?

Ⓐ ($70 + $10) × 2

Ⓑ ($70 - $10) ÷ 2

○ Play the game on the next page with the child before beginning the lesson practice.

LESSON PRACTICE

Find each product. Remember to include a dollar sign and decimal point in your answer.

$3.21	$6.04	$4.85
× 3	× 5	× 2

Complete the story problems.

Darius walked 3 dogs in the morning and 5 dogs in the afternoon. He makes $3.50 for every dog he walks. Complete the problem to find the amount of money Darius made.

$3.50 × (3 + 5)

□

Darius used his money to buy a book for $10.50 and 2 highlighters for $1.25 each. Complete the problem to find the amount of money he spent.

$10.50 + ($1.25 × 2)

□

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Find the cost of the items on Mom's shopping list. Close your eyes, spin in a circle, and touch the tip of your pencil to the paper. Complete the problem your pencil lands on. If you answer it correctly, record the points for that problem. Then the other player has a turn. If your pencil lands on a problem that has already been completed, then close your eyes and try again. The player with the most points after 3 rounds wins the game!

- 2 boxes of macaroni
- 2 jars of tahini sauce

Box of Macaroni $1.50
Tahini Sauce Jar $2.89

($1.50 × 2) + ($2.89 × 2)

10 points

- 3 pounds of dates
- 1 pound of figs

Pound of Dates $8.37
Pound of Figs $9.45

($8.37 × 3) + $9.45

5 points

- 1 sack of fava beans
- 2 pounds of sugar

Sack of Fava Beans $3.22
Pound of Sugar $2.67

$3.22 + ($2.67 × 2)

15 points

- 4 pieces of pita bread
- 3 packages of chicken legs

Pita Bread $1.30
Chicken Legs $4.72

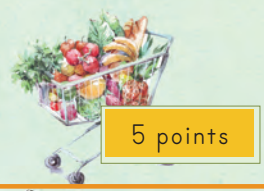
($1.30 × 4) + ($4.72 × 3)

5 points

- 3 cartons of eggs
- 2 tubs of butter

Egg Carton $1.44
Tub of Butter $3.55

($1.44 × 3) + ($3.55 × 2)



5 points

- 5 boxes of lentils
- 2 packages of cheese

Box of Lentils $2.56
Cheese $2.04

($2.56 × 5) + ($2.04 × 2)

5 points

- 1 package of hibiscus leaves
- 2 bottles of juice

Hibiscus Leaves $3.88
Juice $2.20

$3.88 + ($2.20 × 2)

15 points

- 2 pounds of tomatoes
- 4 pounds of carrots

Pound of Tomatoes $1.82
Pound of Carrots $1.02

($1.82 × 2) + ($1.02 × 4)

5 points

- 6 containers of yogurt
- 1 jar of olives

Yogurt Container $0.61
Jar of Olives $6.35

($0.61 × 6) + $6.35

10 points

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REVIEW & ACTIVITIES

Round each number to the circled place value. Write the answer in the box.

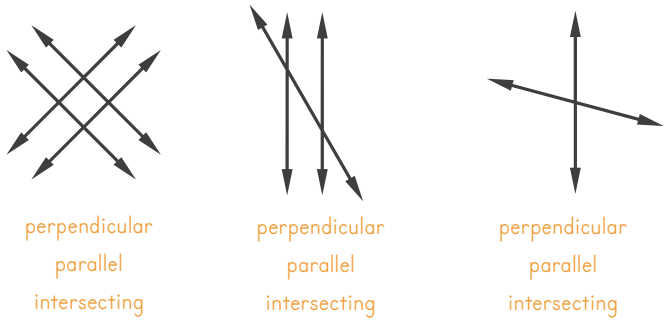
567,857,343

421,871,756

421,637,581

235,643,227

Circle the types of lines that are shown in each image.

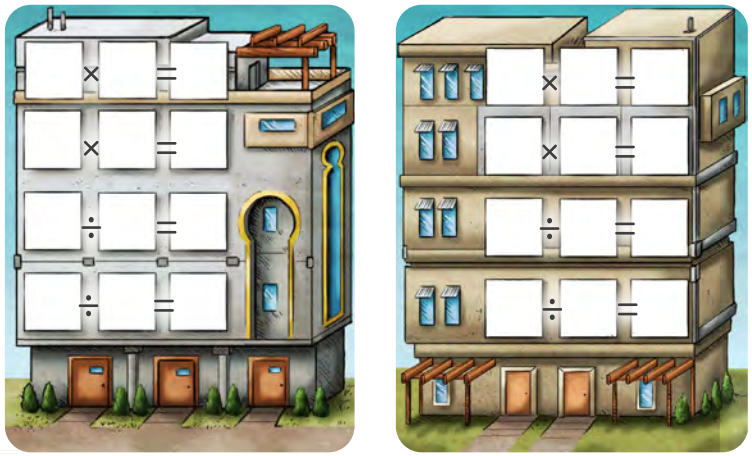


perpendicular
parallel
intersecting

perpendicular
parallel
intersecting

perpendicular
parallel
intersecting

Fill in the blanks in the multiplication and division fact-family houses with **(9, 8, 72)** and **(6, 12, 72)**.



Complete the problems using the subtraction across zeros strategy.

$$\begin{array}{r} 6{,}000 \\ -\ 3{,}624 \\ \hline \end{array}$$

$$\begin{array}{r} 7{,}100 \\ -\ 3{,}562 \\ \hline \end{array}$$

$$\begin{array}{r} 5{,}032 \\ -\ 2{,}789 \\ \hline \end{array}$$

$$\begin{array}{r} 9{,}003 \\ -\ 6{,}357 \\ \hline \end{array}$$

MULTIPLES MAGNET

This magnet attracts multiples of 12. Circle the multiples of 12 below.

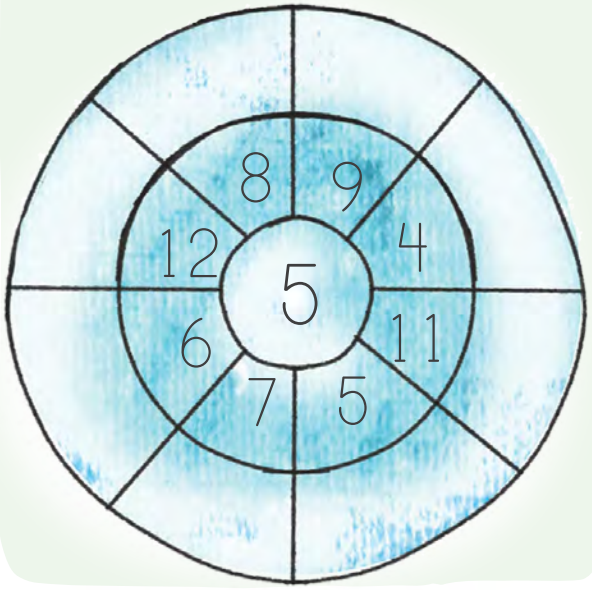
6 12 18 20 24 28 32 36

40 44 48 56 60 68 72

78 82 84 90 96 98 100

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



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Lesson 105

COMPARISONS

Mental Math

Complete both sides of the equation to show that we can add numbers in any order and get the same answer.

$50 + (30 + 10) = (50 + 30) + 10$

$25 + (75 + 50) = (25 + 75) + 50$

○ Take the two game pawns and 6-sided dice from the math box. Read to the child: Ancient Egyptians loved playing board games. Archaeologists like Seth and Darius' father have found games like the two in this lesson in Egyptian tombs. We will be playing a version of the Egyptian games "Senet" and "Mehen." (You may choose to play just one game or both.)

1. Senet: The goal of the game is to get your pawn to the other side of the board. We will each place a pawn on "start" at opposite ends of the game board. On your turn you will write a greater than, less than, or equal to symbol in the circle of the problem you are on. If you are correct, move one space toward the other side. Then it will be my turn. If you land in a space that is already completed, then move your pawn up or down the column to an uncompleted problem. Continue until someone reaches the other side with his or her pawn.

2. Mehen: We will each place our pawn on "start" on the game board on the next page. Then we will take turns rolling the dice and moving forward that many places. Find the missing number that makes the two sides of the equation equal. Write that number in the space. Continue until you reach the snake's head at the center. Repeat either game as often as desired.

SENET

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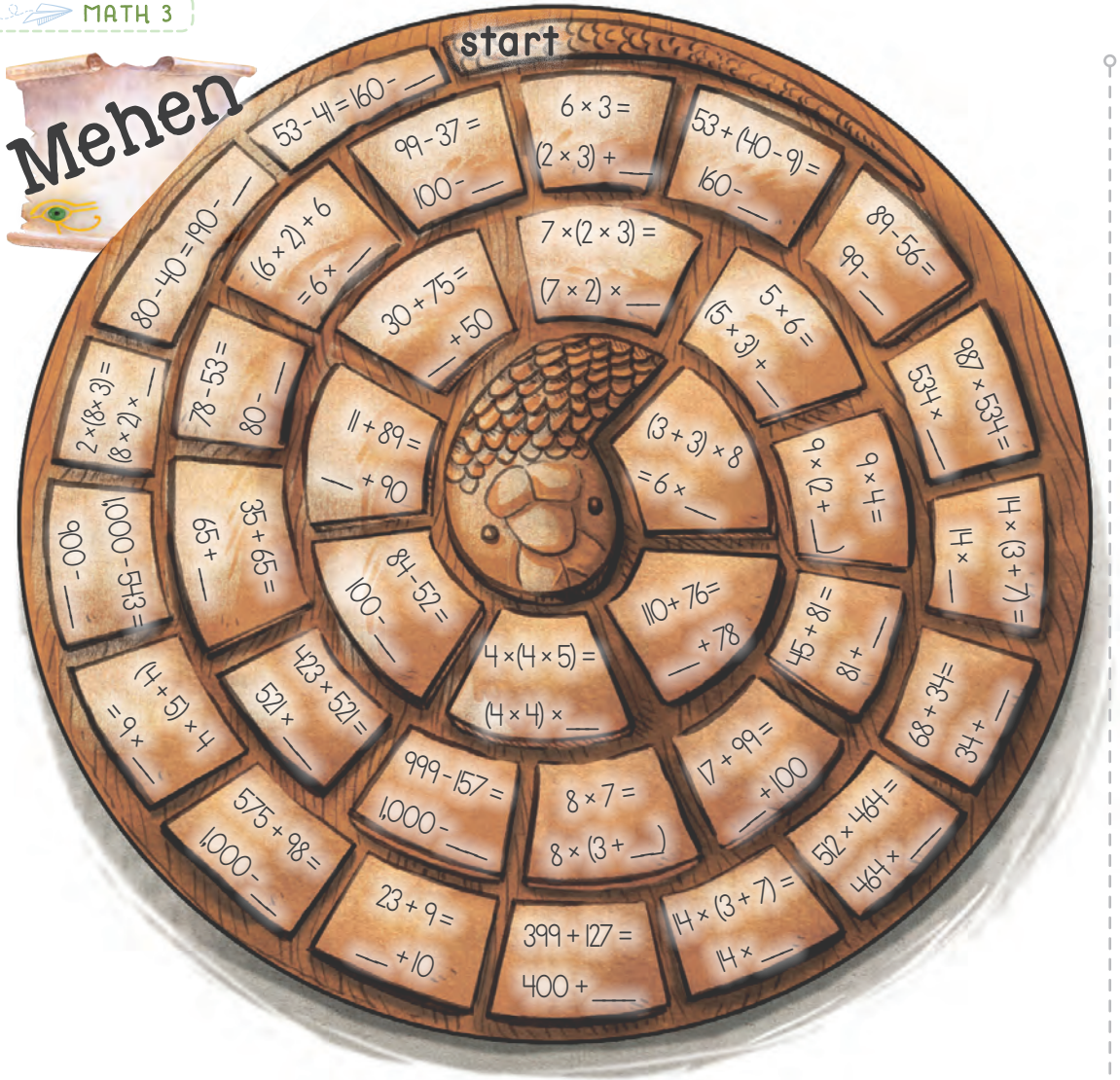

○ Read to the child: Complete the problems, and then write the equal (=) or not equal (≠) sign in the circle.

$(3 \times 4) + (3 \times 5)$	○	3×9
4×5	○	$(4 \times 2) + (4 \times 4)$
$6 + 8$	○	$8 + 6$
$5 + (7 \times 2)$	○	$(5 + 7) \times 2$

LESSON PRACTICE

Write a number in the blank to make the statement true.

$(2 \times \_\_\_) + 5 = 15$

$60 = (5 \times 6) + (6 \times \_\_\_)$

$20 - \_\_\_ = 16$

$24 = (\_\_\_ + 2) \times 4$

$\_\_\_ \times 3 = 36$

Complete each problem, and write the answer on the line below it. Then write 1st through 5th in the boxes under each problem to put the answers in each row in order from least to greatest.

5×8	$66 \div 11$	$50 - 25$	20×3	$100 - 80$
____	____	____	____	____
□	□	□	□	□
$(31 - 1) \div 3$	$48 \div 8$	$85 - 15$	$42 + 9$	12×4
____	____	____	____	____
□	□	□	□	□

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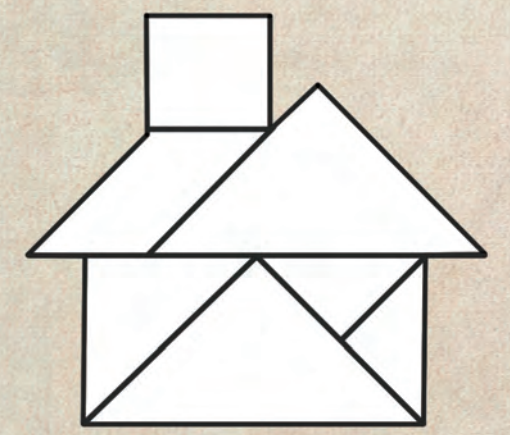
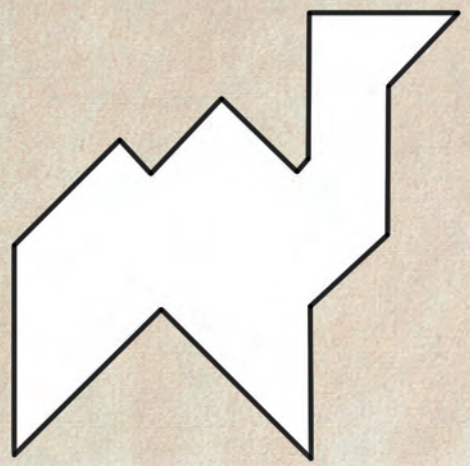
REVIEW & ACTIVITIES

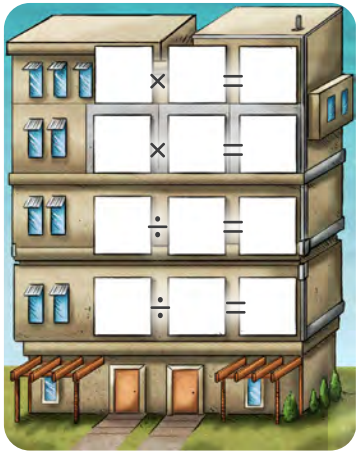
Tangram

Use all the orange tangram pieces from the math box to create these images.

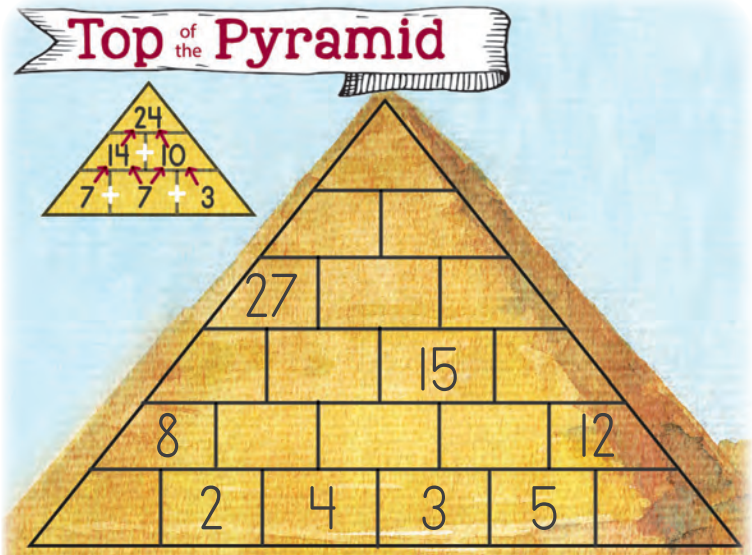




Fill in the blanks in the multiplication and division fact-family houses with **(6, 8, 48)** and **(3, 9, 27)**.



Top of the Pyramid



Each number is the sum of the two numbers it is directly above. Use logic to find the missing numbers. See the example as needed.

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

10 × 12	11 × 12	
12 × 6	12 × 9	12 × 5
12 × 7	12 × 4	12 × 2
12 × 3	12 × 8	12 × 1

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Lesson 106

DIVISION: STORY PROBLEMS

Capacity Dice Game

Take the capacity dice and the 6-sided dice from the math box. Play the Capacity Dice game (refer to page ix for the instructions), but also roll the 6-sided dice. Multiply the amount shown on the capacity dice by the number on the 6-sided dice. The player with the largest volume is the winner. For a bonus challenge, convert the total volume to a smaller unit. For example, 1 gallon × 4 (on the dice) = 4 gallons; 4 gallons is the same as 16 quarts. Play 5 rounds.

○ Read to the child: Division story problems follow two different patterns. You can either divide by the number of groups to find the number in each group, or you can divide by the number in each group to find the number of groups.

Pattern 1: Total number of items ÷ Number of groups = Number in each group

Pattern 2: Total number of items ÷ Number in each group = Number of groups

Let's explore how both types of division story problems are used at a Scottish bakery. Elsie and her older brother Finley are volunteering this Saturday at a local bakery. They will help the owner, Mr. MacKenzie, box up his orders for the morning delivery.

A customer placed an order for 24 potato scones, known as tattie scones. Mr. MacKenzie set out 4 boxes to equally package them. How many potato scones must be placed in each box? This division story problem told us the total number of scones and the number of groups—in this case, boxes. Write the total number of potato scones in the first green box. Write the number of boxes that Mr. MacKenzie set out in the second green box. Write the quotient of 24 divided by 4 in the last green box. Label your answer with "scones per box" on the blank line.

☐ ÷ ☐ = ☐ _____

Total number of scones ÷ Number of boxes = _____

A customer placed an order for 50 Aberdeen butteries. He wanted them packaged with 10 in each box. How many boxes are needed for this order? This division story problem told us the total number of butteries and the number of butteries in each group, or box. Write the total number of butteries in the first green box. Write the number of butteries the customer wants in each box in the second green box. Write the quotient of 50 divided by 10 in the last green box. Label your answer with "number of boxes" on the blank line.

☐ ÷ ☐ = ☐ _____

Total number of butteries ÷ Number in each box = _____

○ Guide the child through the problems below. Write a division problem to answer each question. Then find the quotient.

A customer placed an order for 16 pistachio croissants. The customer requested them to be divided equally into 2 bags. How many pistachio croissants must be placed in each bag?

☐ ÷ ☐ = ☐

Total number of croissants ÷ Number of bags = Croissants in each bag

A customer placed an order for 48 bannocks. She wanted them packaged with 8 in each box. How many boxes are needed for this order?

☐ ÷ ☐ = ☐

Total number of bannocks ÷ Bannocks per box = Number of boxes

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LESSON PRACTICE

ORDER UP!

Write a DIVISION problem for each story problem.

A customer placed an order for 45 Scottish biscuits. He requested 9 biscuits in each box. How many boxes are needed for this order?

☐ ÷ ☐ = ☐

biscuits | biscuits per box | boxes

A customer placed an order for 21 Forfar bridies. Mr. MacKenzie set out 3 boxes to equally package them. How many Forfar bridies must be placed in each box?

☐ ÷ ☐ = ☐

bridies | boxes | bridies per box

A customer placed an order for 12 Dundee cakes. Mr. MacKenzie set out 2 boxes to equally package them. How many Dundee cakes must be placed in each box?

☐ ÷ ☐ = ☐

cakes | boxes | cakes per box

A customer placed an order for 16 black buns. She requested 8 buns in each box. How many boxes are needed for this order?

☐ ÷ ☐ = ☐

buns | buns per box | boxes

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REVIEW & ACTIVITIES

Write and complete a division problem to answer each question. Then find the quotient and label the answer.

Elsie and Finley's mom spins and sells wool. Her goal is to make 20 bundles of wool in 4 days. How many bundles will she have to spin each day to reach her goal?

Mom wants to pack the 20 bundles of wool equally into 2 boxes. How many bundles of wool will be placed in each box?

Mom made a total of $40 from selling both boxes of wool. How much did she make for each box?

Complete each problem, and write the answer on the line below it. Then write 1st through 5th in the boxes under each problem to put the answers in each row in order from least to greatest.

3 × 9	63 ÷ 9	25 − 4	16 + 30	100 − 85
____	____	____	____	____
□	□	□	□	□

(15 − 3) ÷ 2	100 ÷ 10	50 − 35	27 + 27	7 − 5
____	____	____	____	____
□	□	□	□	□

Round each number to the circled place value. Write the answer in the box.

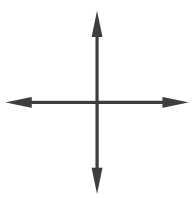
246,844,321 | 345,691,687

756,363,893 | 401,652,181

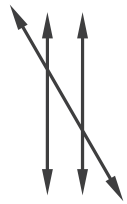
Complete the problems.

$$\begin{array}{r} \$2.41 \\ \times \quad 3 \\ \hline \end{array} \qquad \begin{array}{r} \$4.53 \\ \times \quad 6 \\ \hline \end{array} \qquad \begin{array}{r} \$7.24 \\ \times \quad 5 \\ \hline \end{array}$$

Circle the types of lines that are shown in each image.



perpendicular
parallel
intersecting



perpendicular
parallel
intersecting

Continue the pattern.

1, 4, 7, 10, _____, _____, _____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below. □

$$\begin{array}{r} 12 \\ \times \quad 4 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 2 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 5 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \times \quad 6 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 3 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 8 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ \times \quad 9 \\ \hline \end{array}$$

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Lesson 107

ROMAN NUMERALS

Mental Math

Multiply the following in your head and answer aloud:

8 × 8 5 × 4 1 × 5 8 × 9

Calendar

- What was the date a week before yesterday?
- What will the date be two weeks from tomorrow?
- How many days are in 3 weeks? (7 days per week × 3 weeks)
- How many months are in 2 years? (12 months per year × 2 years)

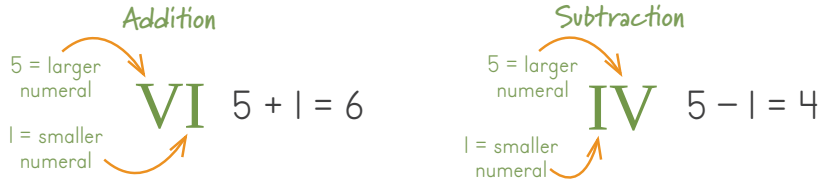
○ Read to the child: This year Elsie has a goal to visit 100 *lochs* [locks] (Scottish Gaelic for "lake"). She writes the name of each loch she has visited on a list and then uses Roman numerals to number them. ***Roman numerals*** were created by ancient Romans to represent numbers. First, let's review the letters that are used for Roman numerals and their numerical values. Look at the chart and point to the letter that represents 50. Which letter represents 10? 100? 5? 1?

1	5	10	50	100
I	V	X	L	C

To write a number using Roman numerals, there are a few rules.

1. When the same Roman numerals are next to each other, their values are added. For example, the Roman numeral III means 1 + 1 + 1 which is 3.
2. More than three of the same Roman numeral are never written together. The number 4 is not IIII it is IV. When a smaller Roman numeral comes before a larger one, the first is subtracted from the second. For example, IV means 5 − 1, which is 4. And IX means 10 − 1, which is 9.

3. When a larger Roman numeral comes before a smaller one, the values are added. For example, VI means 5 + 1, which is 6. And XIII means 10 + 1 + 1 + 1, which is 13.



Look at Elsie's list below. Which number is Loch Lomond on the list? Since X stands for 10 and I stands for 1, that means we would add 10 + 1 + 1 = 12. Write the number represented by each Roman numeral on Elsie's list.

	Roman numeral	number		Roman numeral	number
Loch Ness	IV		Loch Lochy	C	
Loch Awe	XXI		Black Loch	XL	
Loch Lomond	XII		Loch Fyne	III	
Loch of Harray	XV		Loch Scye	LV	
Loch Morar	LX		Loch Roan	VII	

○ Read to the child: Make your own loch list. Write a number between 1 and 100 next to each loch name. Then write the Roman numeral for each number next to it.

	number	Roman numeral		number	Roman numeral
Loch Maree			Loch Hope		
Loch Tay			Loch Middle		
Loch Shiel			Loch Doon		

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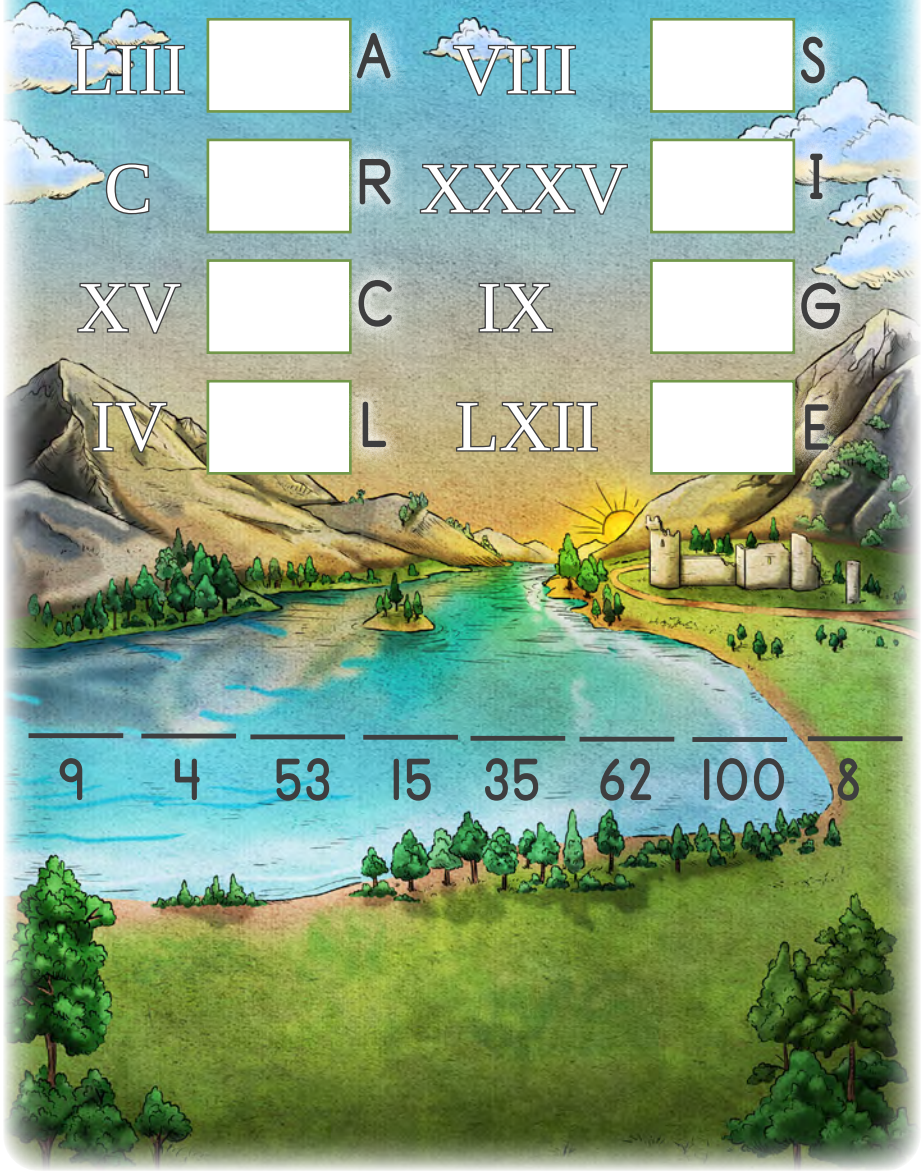
LESSON PRACTICE

UnLoch the Mystery

How does Scotland have so many lakes? Write the number next to each Roman numeral below, and then find the matching letter and write it in the correct place to find out how these lakes were created.

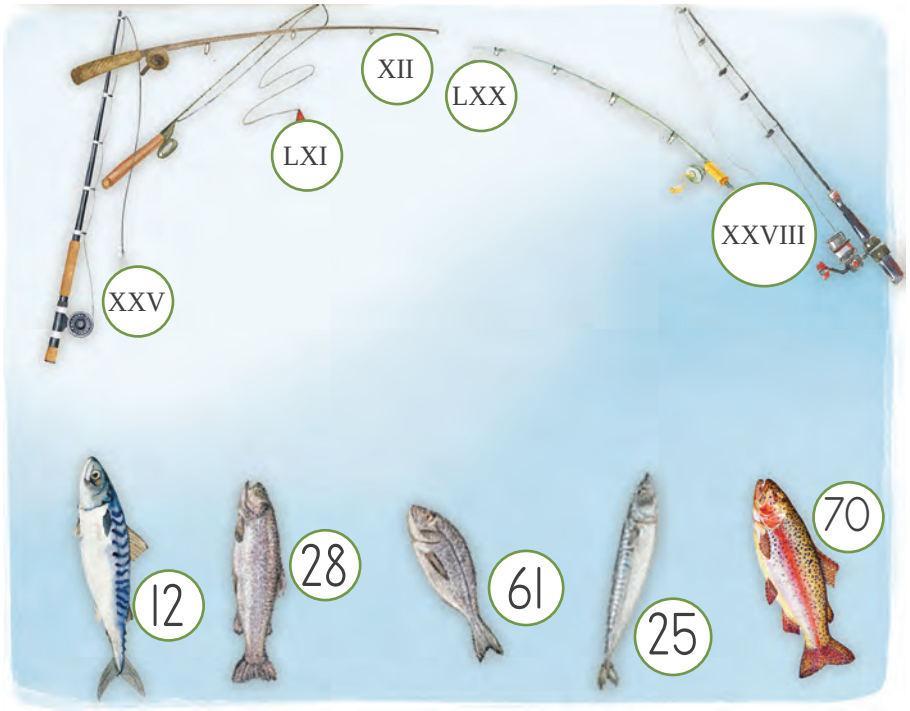
LIII		A		VIII		S	
C		R		XXXV		I	
XV		C		IX		G	
IV		L		LXII		E	



Write a greater than, less than, or equal symbol to compare the numbers and Roman numerals.

VII	◯	X	LVI	◯	XXX
C	◯	LX	40	◯	XLV
XX	◯	25	12	◯	XII
9	◯	IX	XV	◯	V

Draw a line from each pole to the correct fish to match the Roman numeral to the number.



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REVIEW & ACTIVITIES

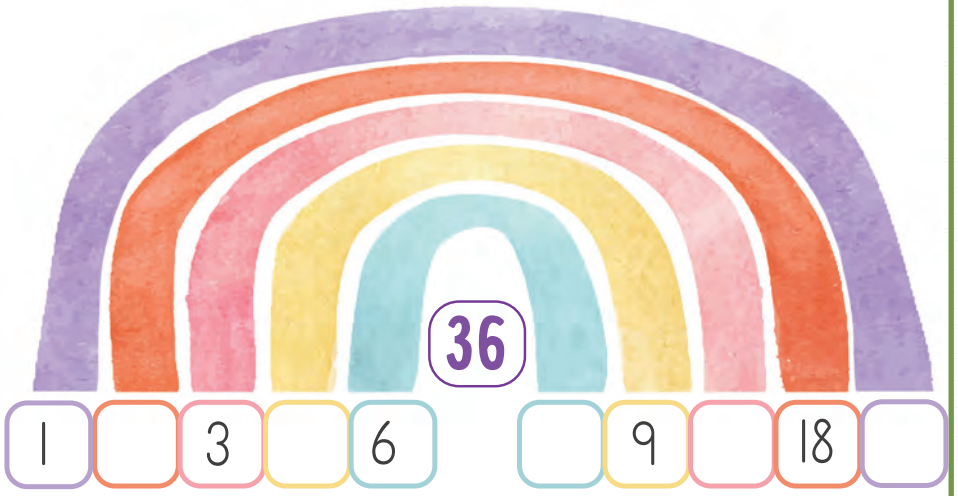
A customer placed an order for 16 black buns. He requested 2 black buns in each box. How many boxes are needed for this order?

buns	÷	buns per box	=	boxes

A customer placed an order for 81 Scottish biscuits. Mr. MacKenzie set out 9 boxes to equally package them. How many Scottish biscuits must be placed in each box?

biscuits	÷	boxes	=	biscuits per box

Write the missing factors for the number 36.



A World of Angles

Angles are everywhere around us! Use different colored pencils to trace the angles in the pictures below. Use red for right angles, blue for acute angles, and green for obtuse angles. There can be more than one angle in an image.

Round each number to the circled place value. Write the answer in the box.

529,871,369

478,649,537

325,756,843

178,699,437

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

4 ×12	2 ×12	5 ×12	7 ×12
6 ×12	3 ×12	8 ×12	9 ×12

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Lesson 108

COORDINATE PLANE

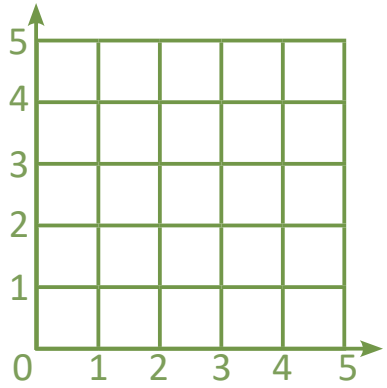
Money

- How many quarters are in 1 dollar? In 3 dollars?
- How many nickels are in 1 dollar? In 2 dollars?
- How many pennies are in 1 dollar? In 4 dollars?

Skip Counting

- Skip count by 6s from 6 to 66.
- Skip count by 60s from 60 to 660.

Read to the child: This is a coordinate plane, and it can be used to plot and find points and lines. You can see that it looks like a grid with two perpendicular number lines.



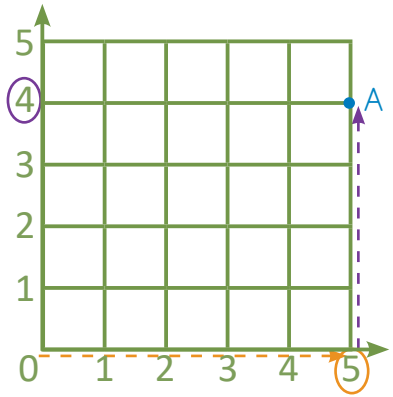
An ***ordered pair*** is a pair of numbers used to show the position of a point on a coordinate plane. You can find a point on a coordinate plane using an ordered pair, written within parentheses and separated by a comma, like this: (5, 4). To plot a point, start at zero and go across the horizontal number line until you reach the first number of the ordered pair. Move up vertically until you reach the point across from the second number on the vertical number line. Then draw the point.

On the grid below, place your right pointer finger on the 0 and slide it over until you reach the circled number 5 on the horizontal number line. The second number in the pair is always found using the vertical number line. Starting at the circled 5 (first number we found), move your finger up until you reach the 4th line, which will be across from the circled number 4 on the vertical number line. The letter found at (5,4) is marked A, so this point is named point A.

(5, 4)

This number is found using the horizontal number line.

This number is found using the vertical number line.



Notice how the number lines meet at 0. The numbers on both lines increase as you move to the right and upward.

Let's practice plotting some points on the coordinate plane above. We will say that Point B is at (4, 1). Which number is found using the horizontal number line? Which number is found using the vertical number line? Parent/Teacher Note: The child should not draw dotted lines on the coordinate plane like the orange and purple ones in the example above; they are only to help guide the child in finding the first coordinate. Find the point on the coordinate plane and ***plot***, which means to draw, a point and label it with a B. Plot and label the following points on the coordinate plane above:

B (4, 1) C (3, 3)
D (2, 1) E (1, 4)

If you connect the points in alphabetical order, what letter do they make?

Ask the child where he or she thinks using a coordinate plane could be useful. If you were planting a garden, you could draw a coordinate plane to plan where each seed or plant should go. If you were designing a plan for a city, the numbers could represent miles, and you could plot roads, houses, parks, and more! You can use a coordinate plane to place furniture in a room

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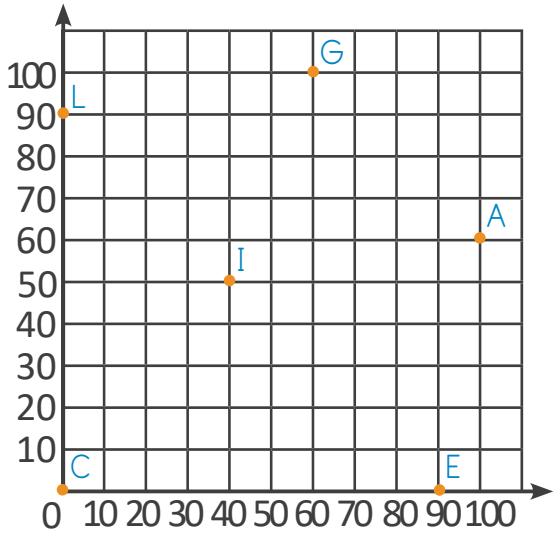
or design a parking lot. A touch-screen phone uses a coordinate plane to track where you're touching the screen. Coordinate planes are used in physics experiments and when reading a map.

Coordinate planes can be organized in different ways. The one below uses number lines that count by 10s. Look at it and write the letter at each point in the corresponding blank to find the name of one of three languages spoken in Scotland.



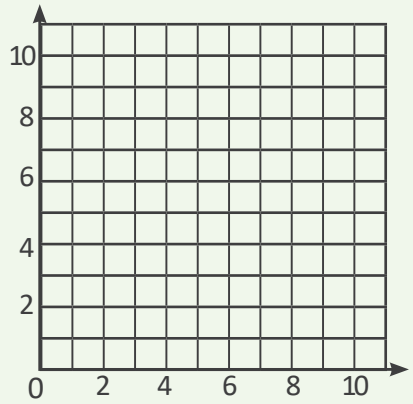
_____ _____ _____ _____ _____ _____

(60, 100) (100, 60) (90, 0) (0, 90) (40, 50) (0, 0)

○ Remove the game board from page 361 and the game pieces from the Lesson 108 page in the Appendix. Cut the game boards along the dashed line so you have two boards. Read the instructions on the back of the game board aloud to the child.

LESSON PRACTICE

Plot the following points:

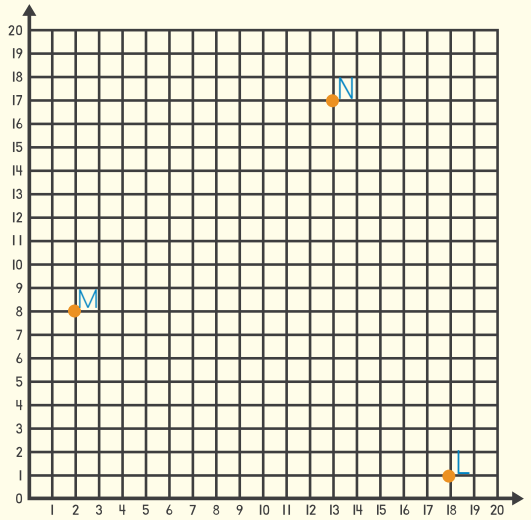


T (8, 3)

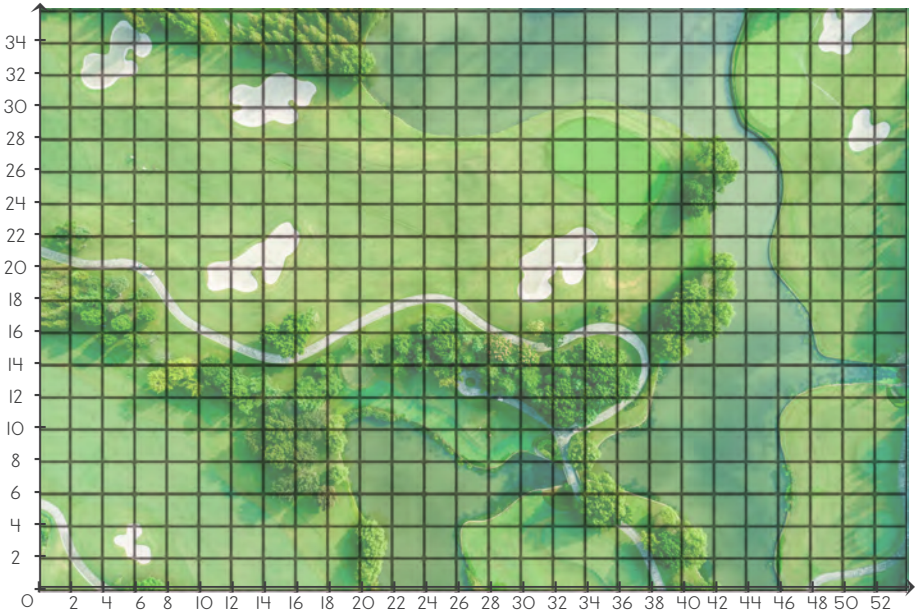
U (4, 1)

V (0, 6)

Match the point with the correct coordinates.



(13, 17)_____ (2, 8)_____ (18, 1)_____



Scotland is famous for its golf courses. Plot the points on the golf course and label them to show where each hole is found.

Hole 1: (46, 32)
Hole 2: (48, 18)
Hole 3: (52, 8)
Hole 4: (28, 10)
Hole 5: (14, 0)
Hole 6: (2, 12)
Hole 7: (6, 26)
Hole 8: (12, 34)
Hole 9: (36, 26)

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REVIEW & ACTIVITIES

Complete the division story problems.

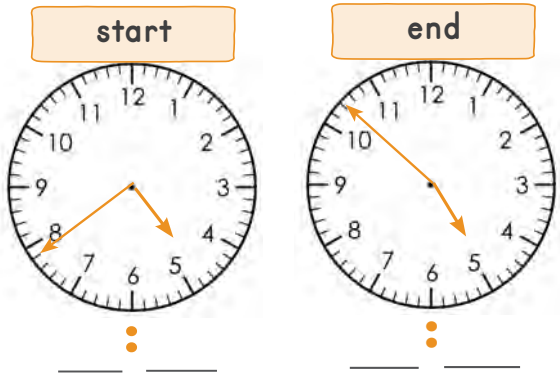
A customer placed an order for 8 Dundee cakes. He requested 4 cakes in each box. How many boxes are needed for this order?

cakes	÷	cakes per box	=	boxes
☐		☐		☐

A customer placed an order for 42 bridies. Mr. MacKenzie set out 6 boxes to equally package them. How many bridies must be placed in each box?

bridies	÷	boxes	=	bridies per box
☐		☐		☐

Write the start time and end time, and then find the elapsed time. (Both times are given in PM.)



Elapsed time = _____

Write the Roman numerals as numbers in the boxes, and then complete the problems.

LXXV

☐

\+ 378

XCII

☐

\+ 414

XLVI

☐

\+ 237

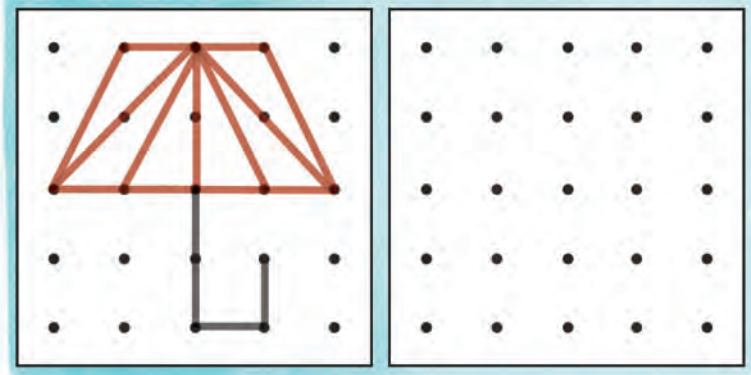
XXXIV

☐

\+ 781

PEG Patterns

Use colored pencils to copy the design on the left to the dots on the right.



✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

10 × 12	3 × 12	11 × 12	2 × 12	1 × 12

12 × 6	12 × 9	12 × 5	12 × 7	12 × 8	12 × 4

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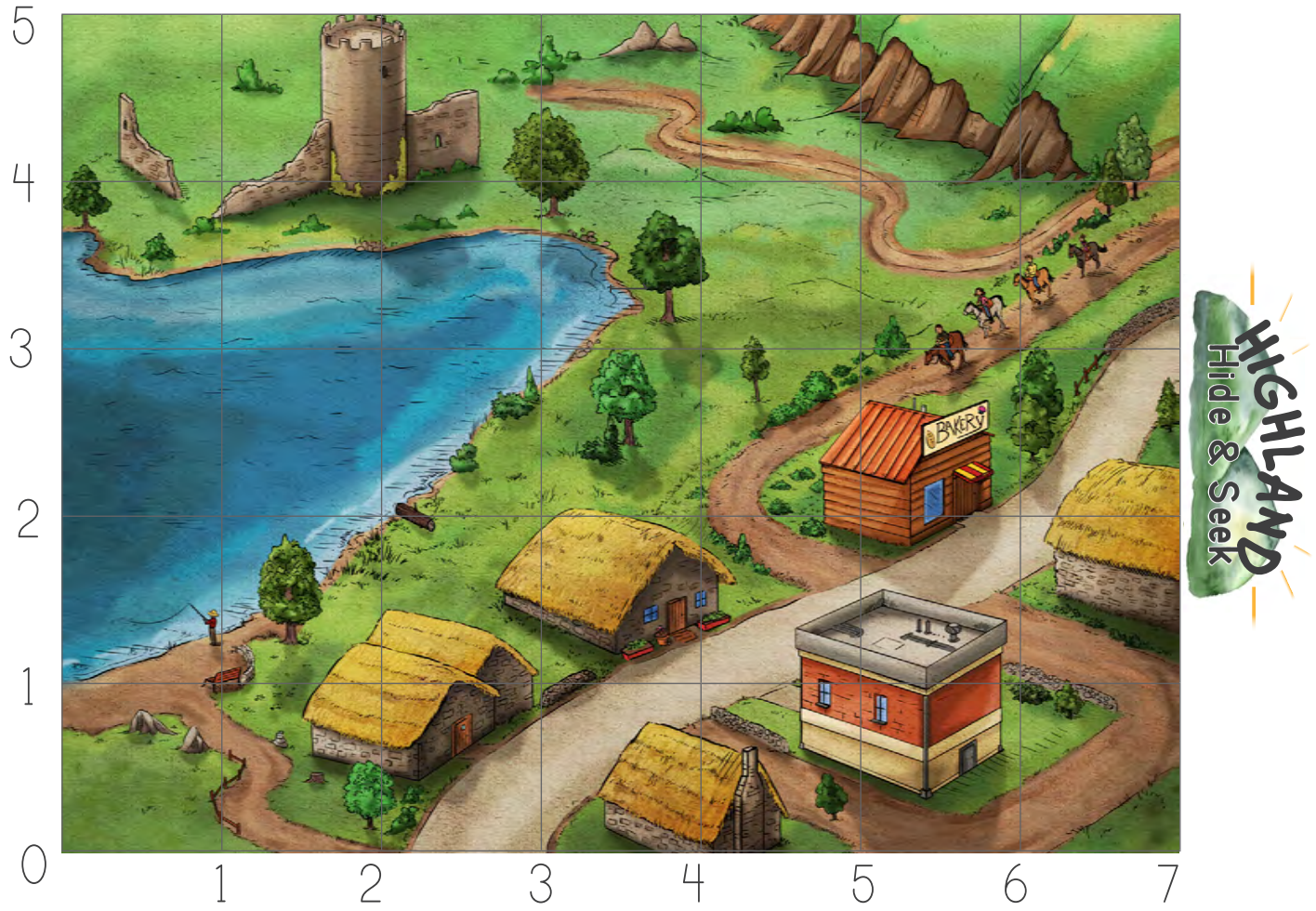
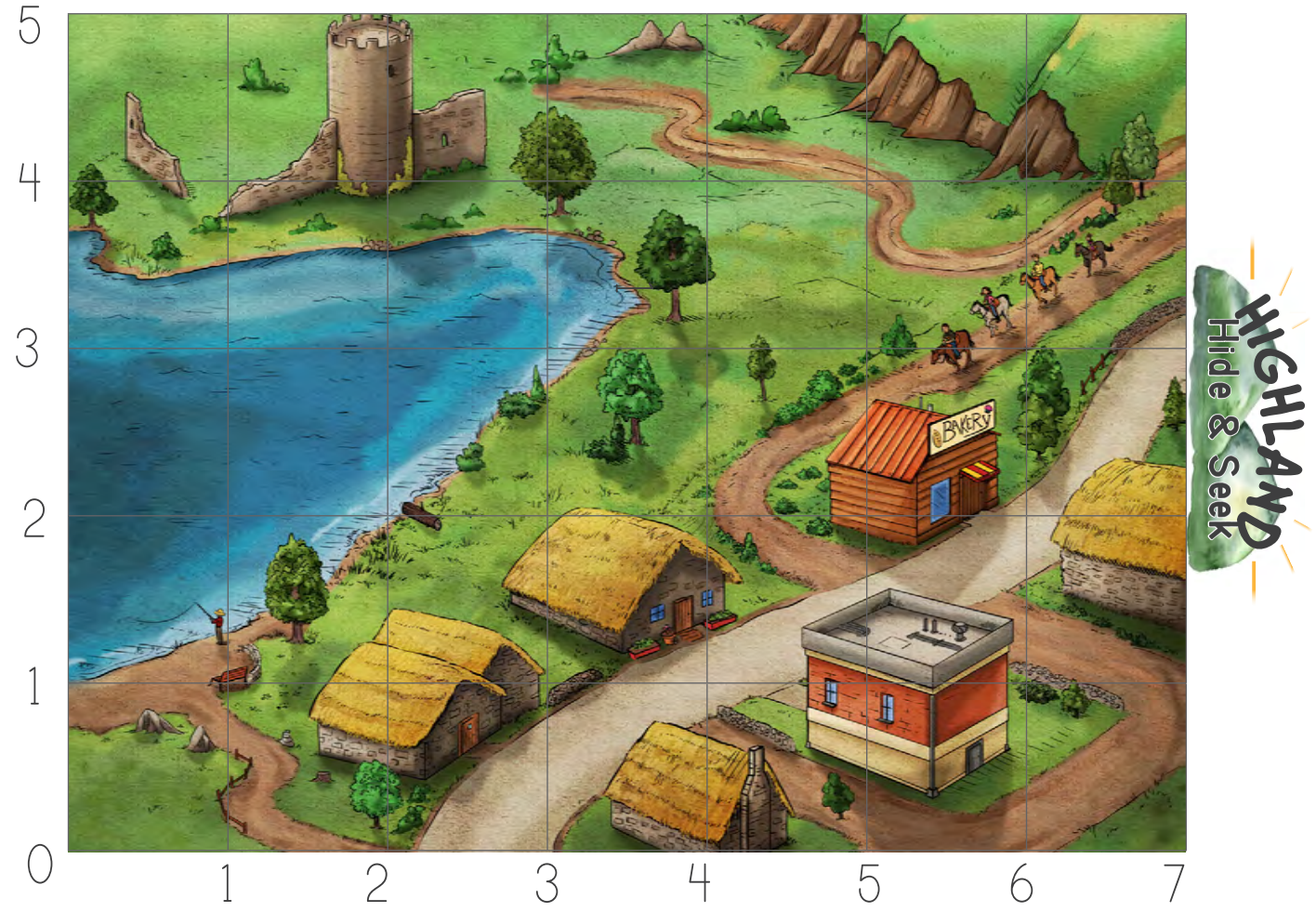

5
4
3
2
1
0
1
2
3
4
5
6
7
BAKERY
HIGHLAND
Hide & Seek


5
4
3
2
1
0
1
2
3
4
5
6
7
BAKERY
HIGHLAND
Hide & Seek

Highland Hide & Seek Game Board #1

Supplies: pencil, tape or glue, tall box or book

Instructions: Remove the two game boards from page 361. Punch out the two sets of Scottish icons from the Appendix. Give one game board and three Scottish icons to each player.

Prevent your opponent from seeing your game board by blocking his or her view with a tall box, open notebook or folder, or propped-up book, and tape or glue your pieces to your board using ordered pairs of your choice. When you are both ready, take turns guessing where your opponent's icons are hidden by calling out an ordered pair where you think one may be placed. Keep track of your guesses by drawing a small X on your game board on any incorrect ordered pairs and plotting a point at the correct ones. The first player to find all three of his or her opponent's hidden Scottish icons is the winner.

Highland Hide & Seek Game Board #2

Sections of this page are intentionally left blank for double-sided cutting purposes.

Lesson 109

IDENTIFYING TRIANGLES BY SIDE LENGTH

Time

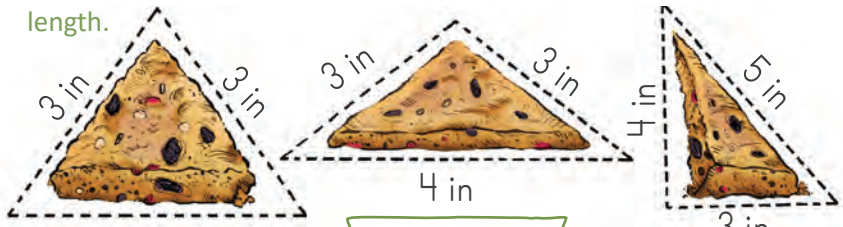
Read the time on each clock in two different ways. (For example, 2:30 could be read as "two thirty" or "half past two.")

Skip Counting

- Skip count by 9s from 9 to 99.
- Skip count by 90s from 90 to 990.

○ Read to the child: Elsie and her father are making tattie scones for breakfast. A tattie scone is a traditional Scottish scone made with potatoes. The dough is rolled out and cut into triangles. Today, Elsie is having a little fun making her triangles different shapes. Look at the scones she has made below. The first triangle has sides that are all equal in length; it is an ***equilateral triangle***. The second one has two sides that are equal in length and a third side length that is different; it is an ***isosceles triangle***. The third triangle has sides that are all different lengths; it is a ***scalene triangle***.

Look at the triangles and trace the sides on each that are equal in length.

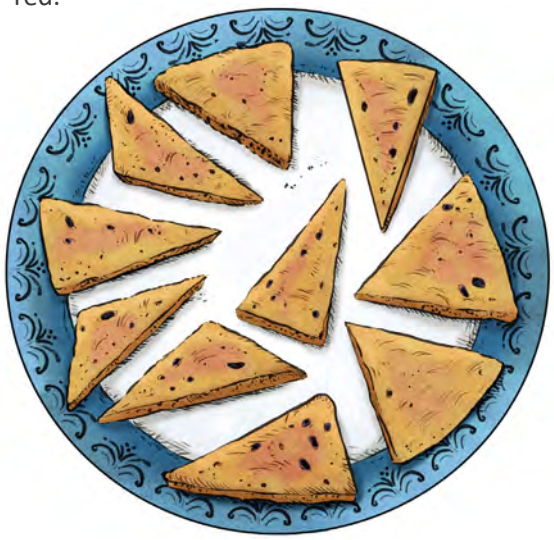


EQUILATERAL TRIANGLE
3 equal side lengths

ISOSCELES TRIANGLE
2 equal side lengths

SCALENE TRIANGLE
0 equal sides

○ Read to the child: Elsie loves cutting out the scones and has made so many that she and her father are going to share some with their neighbor. On the plate below, circle the scones that are equilateral triangles in blue, isosceles triangles in yellow, and scalene triangles in red.



Draw each type of triangle below.

EQUILATERAL

ISOSCELES

SCALENE

○ Read to the child: Elsie's father has been showing her his architectural drawings and teaching her about the power of triangles. Did you know that triangles are the strongest shape? They are used often in buildings because they can hold the most weight. Look at the picture of St. Giles' Cathedral in Scotland below. Can you find three equilateral and three isosceles triangles?

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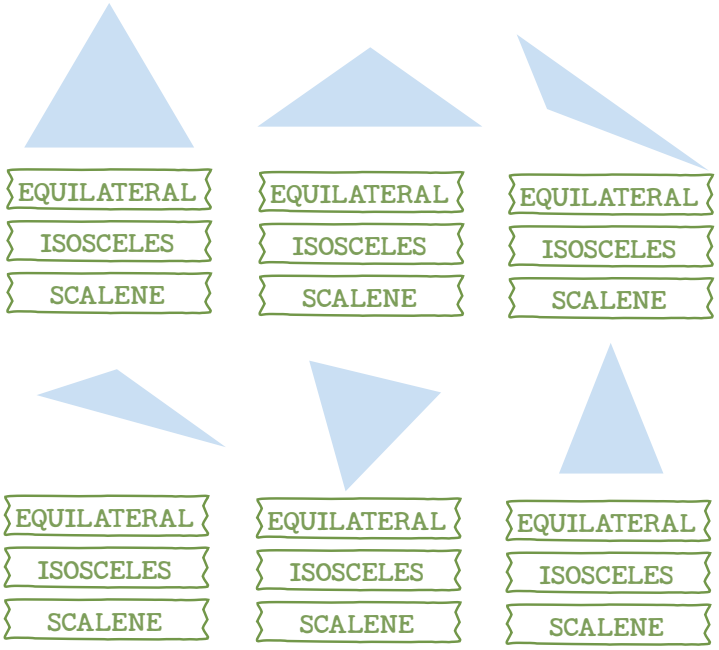
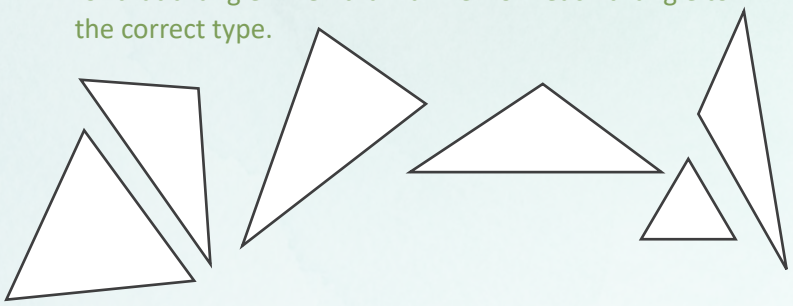
LESSON PRACTICE

Circle the correct triangle type.



On each triangle write the number of equal side lengths for that triangle. Then draw a line from each triangle to the correct type.



SCALENE ISOSCELES EQUILATERAL

PATHS to the CASTLE

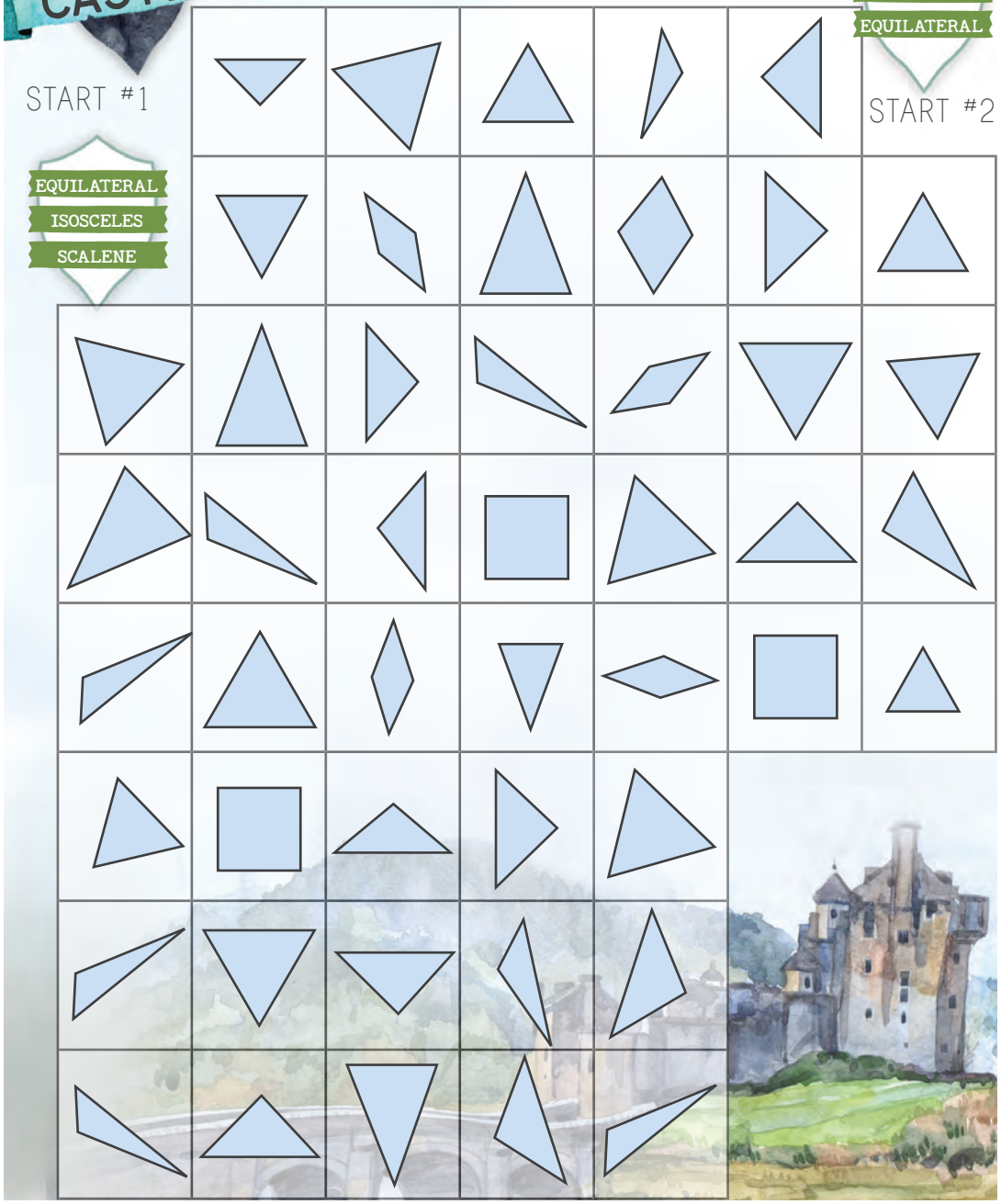
Following the triangle pattern on each shield, start at the shield to make a path to the castle. Repeat with the other shield. The path can be diagonal.

START #1

EQUILATERAL
ISOSCELES
SCALENE

START #2

ISOSCELES
SCALENE
EQUILATERAL



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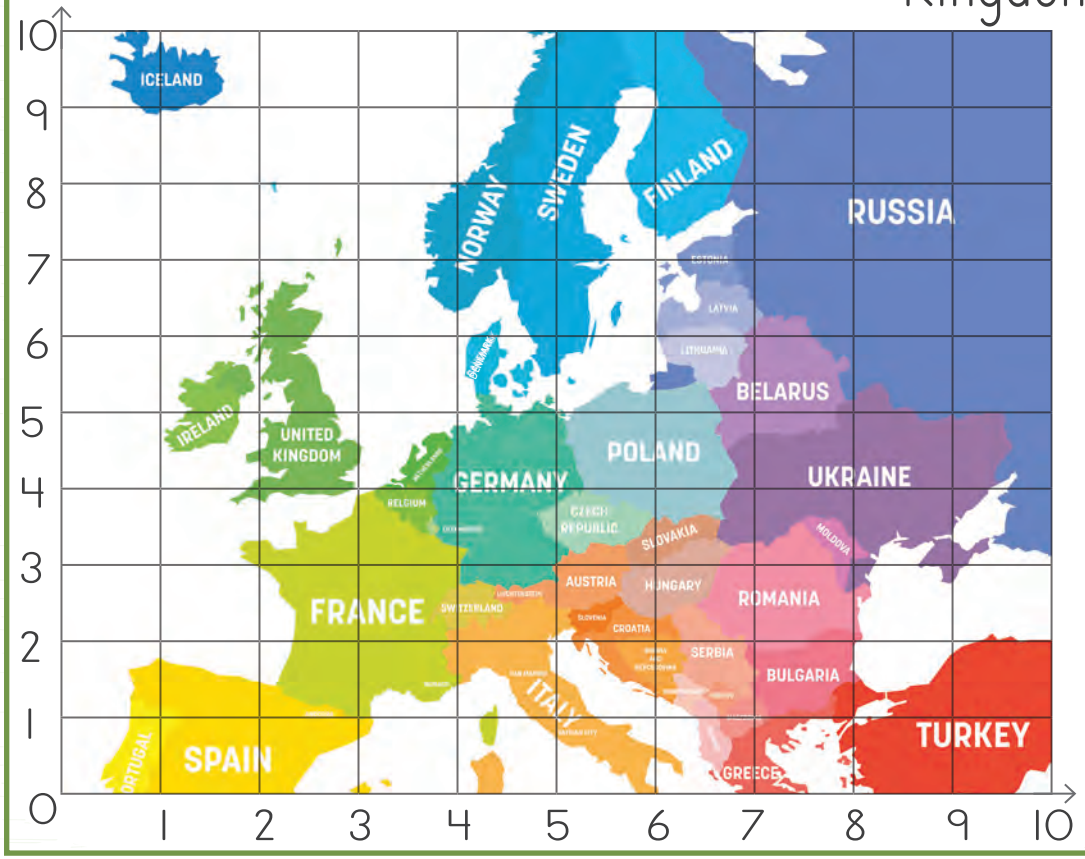
REVIEW & ACTIVITIES

Find the country at each ordered pair listed below. Remember to start with the horizontal number first. Draw a line to match the ordered pair to the name of the country.

(3, 2)	Germany	(5, 7)	Ukraine
(1, 9)	Russia	(9, 1)	Poland
(5, 4)	Iceland	(2, 4)	Sweden
(9, 7)	Finland	(8, 4)	Turkey
(6, 8)	France	(6, 5)	United Kingdom



Add the mixed numbers to find the total number of each pastry that Finley and Elsie ate in one week.

$5\frac{1}{4} + 4\frac{2}{4} =$ ____

$2\frac{1}{5} + 2\frac{3}{5} =$ ____

$12\frac{1}{4} + 9\frac{1}{4} =$ ____

$2\frac{1}{3} + 3\frac{1}{3} =$ ____

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below. Draw a line to match the problem to its correct answer.

12 × 6	12 × 9	12 × 5	12 × 7	12 × 4	12 × 8

108 84 48 72 96 60

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Lesson 110

FRACTION OF A SET: PART 1

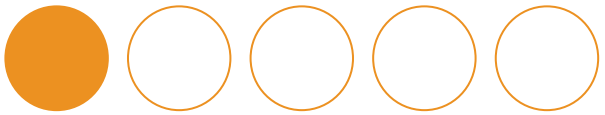
Mental Math

Complete the problems in your head, and then compare the answers and write the correct symbol (<, >, or =) between them.

2 × 3 ◯ 15 ÷ 3		6 + 12 ◯ 27 - 8	
4 × 2 ◯ 32 ÷ 4		15 + 10 ◯ 45 - 15	

○ Read to the child: So far you have learned how to use fractions to describe part of a whole. For example, look at the circle shown to the right. Fill in the boxes to write a fraction that represents the part of the circle that is shaded. The whole circle is divided into 5 equal parts, and 1 part is shaded, which is one-fifth of the circle.

In this lesson, we will learn about fractions of a set. Fractions can be used to describe a part of a group of objects. The denominator is the number of total objects. The numerator is the number of parts being referred to. Fill in the boxes to write a fraction that represents the part of the group of circles that is shaded.



PART

TOTAL

Shade in the correct number of each set of shapes according to the fraction shown.

$\frac{1}{4}$

$\frac{1}{2}$

○ Read to the child: Elsie and Finley are feeding apples to their Highland horses. For each group of apples below, circle the correct fraction for the specified set.

YELLOW

$\frac{3}{8}$ $\frac{4}{9}$ $\frac{5}{8}$

LIGHT RED

$\frac{4}{6}$ $\frac{6}{10}$ $\frac{4}{10}$

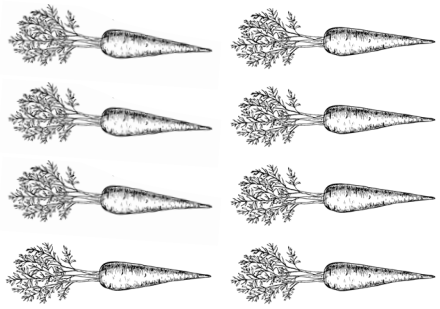
DARK RED

$\frac{2}{5}$ $\frac{5}{7}$ $\frac{2}{7}$

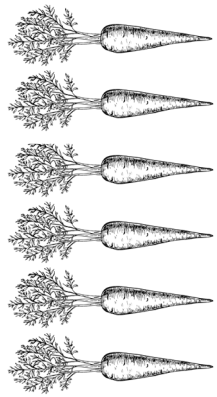
GREEN

$\frac{2}{5}$ $\frac{2}{3}$ $\frac{3}{5}$

○ Guide the child through the problems. The horses enjoy eating carrots as well. Practice finding fractions of a set by shading the correct number of carrots according to the fraction shown.



$\frac{2}{8}$



$\frac{3}{6}$

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LESSON PRACTICE

Write the fraction that represents the part of each set. The denominator is the total number of horses in each the group. The numerator is the number of horses being referred to.

BLACK AND WHITE ___

SPOTS ___

LARGE ___

GRAY ___

WHITE ___

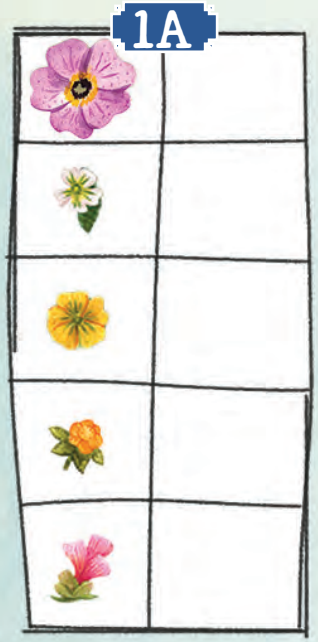
TAN ___

While out riding her horse, Elsie stopped to pick flowers for bouquets for her mother and neighbors. Write the number of each type of flower in each bouquet in boxes 1A and 2A.

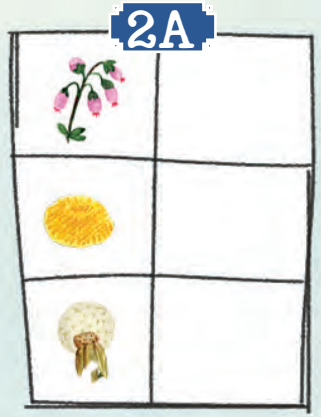
Bouquet #1

Bouquet #2

1A



2A



1B

2B

Write the fraction of the bouquet for each type of flower in boxes 1B and 2B. Count the total number of flowers in the bouquet to find the denominator. Then write the number of the type of flower as the numerator.

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REVIEW & ACTIVITIES

Complete the division problems. Use the orange boxes for drawing dots to help find the answers, if needed.

10 ÷ 3 = ☐ R ☐

14 ÷ 4 = ☐ R ☐

Help the Highland pony get a drink. Draw a line from each number to the bucket with the number rounded to the circled place value.

267,546,943 267,712,983 267,356,923 267,572,647

268,000,000 270,000,000 267,360,000 267,500,000

✧ Multiplication Fact Practice ✧ ☐

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

10	6	12	9	11
× 12	× 12	× 12	× 12	× 12

UnLoch the Mystery

The Scottish Highlands are home to a famous breed of cattle. Write the number next to each Roman numeral below, and then find the matching letter and write it in the correct place to find out where these cows like to eat.

XXIV	☐	O	XI	☐	M			
C	☐	I	XC	☐	T			
LXXV	☐	A	XVI	☐	N			
XLVIII	☐	U	XIX	☐	S			
11	24	48	16	90	75	100	16	19

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Lesson 111

GEOMETRIC SOLIDS (3D SHAPES)

Multiplication

If you know 8 × ⬟ = 32, and ★ × 4 = 32, then

32 ÷ ★ = _____ 32 ÷ ⬟ = _____

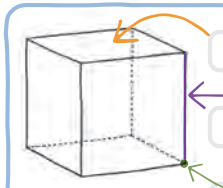
Area

What is the length of a rectangle with an area of 28 sq ft and a width of 7 ft?

○ Read to the child: ***Three-dimensional*** figures are shapes that are solid and not flat. We often refer to them as 3D figures, or solids. Look at the cube below. How is it different from a square? [It takes up space.]

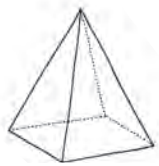
A ***two-dimensional*** shape is flat. Two-dimensional shapes, such as squares and triangles, are often described by the number of sides they have. Three-dimensional figures are often described by the number of faces, edges, and vertices they have. A ***face*** is a flat surface on a solid. A cube has 6 faces. An ***edge*** is a line segment formed where two faces meet. A cube has 12 edges. A ***vertex*** is a point where two or more edges of a 3D figure meet.

Write the number of faces, edges, and vertices for the 3D (three-dimensional) figures below. Refer to the chart to the right as needed.



Face 6
Edge 12
Cube Vertex 8

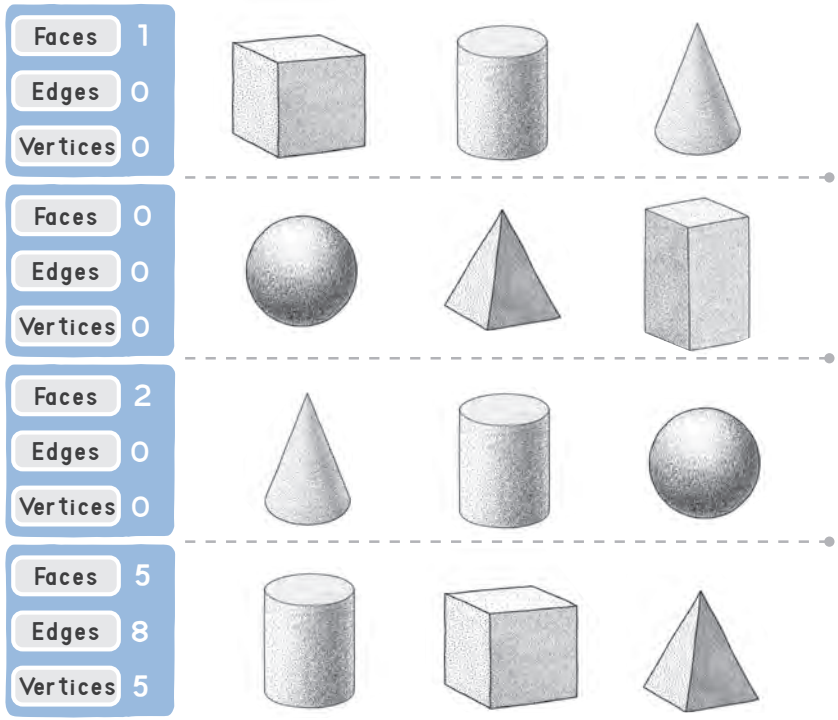
Rectangular Prism
Faces _____
Edges _____
Vertices _____



Square Pyramid
Faces _____
Edges _____
Vertices _____

	Cone	Cube	Sphere	Square Pyramid	Cylinder	Rectangular Prism
Faces	1	6	0	5	2	6
Edges	0	12	0	8	0	12
Vertices	0	8	0	5	0	8

○ Read to the child: Circle the correct geometric solid with the number of faces, edges, and vertices listed to the left.



○ **Shapes Suitcase** Read to the child: I am going to describe a 3D shape and you will tell me the name of the shape I describe. Pick a shape from the chart at the top of this page and say the number of faces, edges, and vertices it has. Repeat each shape as often as needed.

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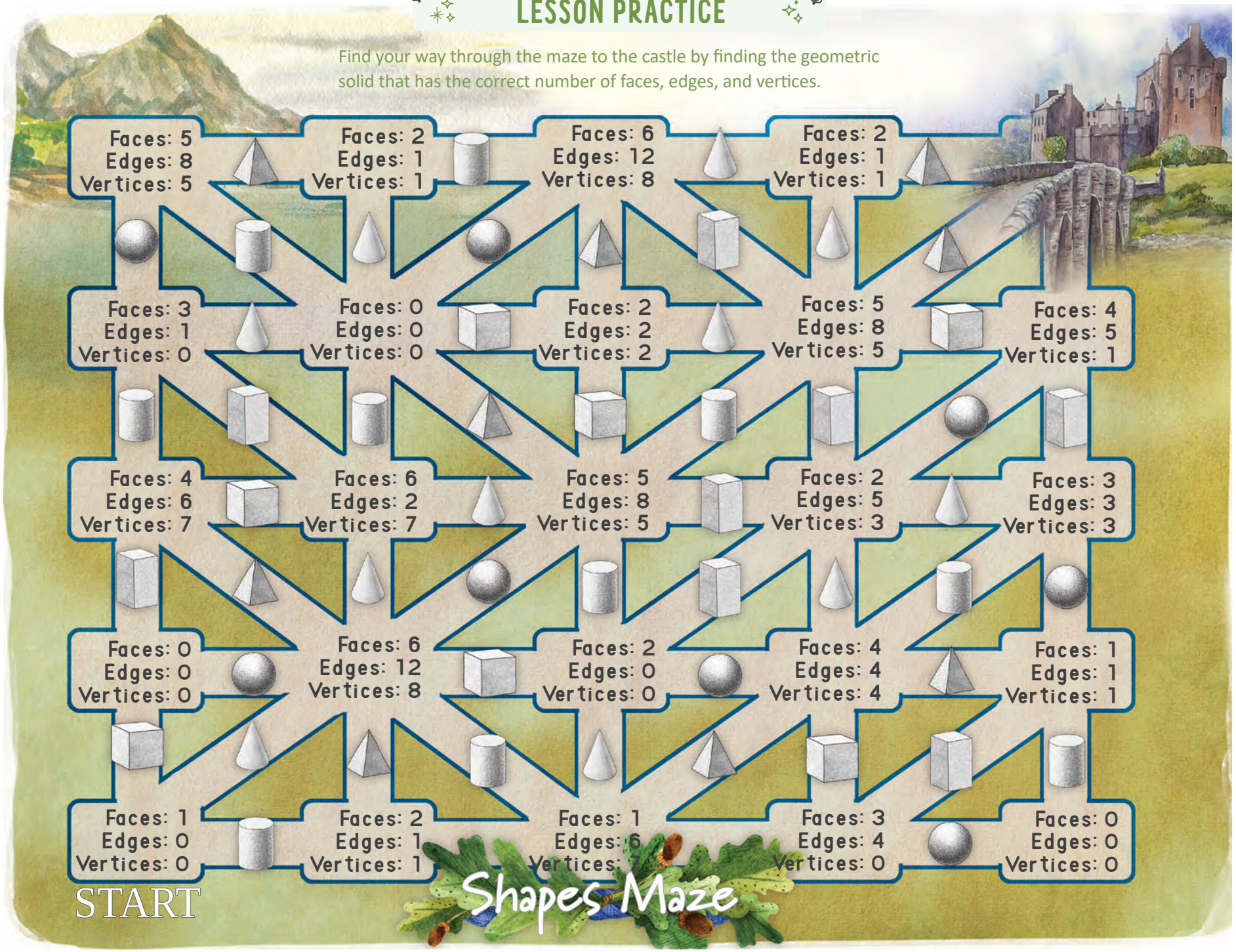
LESSON PRACTICE

Find your way through the maze to the castle by finding the geometric solid that has the correct number of faces, edges, and vertices.



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REVIEW & ACTIVITIES

Complete the problems.

81 ÷ 9 × 3 = ☐	(1 + 7) - 2 = ☐	(8 - 3) × 5 = ☐
3 × 7 - 4 = ☐	3 + 9 × 3 = ☐	18 ÷ (4 - 2) = ☐	6 + 30 ÷ 2 = ☐

Write and complete a division problem for each story problem by writing the correct numbers in the boxes.

Elsie's mother is making hats for 3 different charities. If she made 27 total hats and wanted to give each charity an equal number of hats, how many would each charity receive?

☐ ÷ ☐ = ☐

Dividend Divisor Quotient

Elsie and Finley are herding their sheep into 4 different pens. If they have 32 sheep and need to divide them equally in the pens, how many sheep will go in each pen?

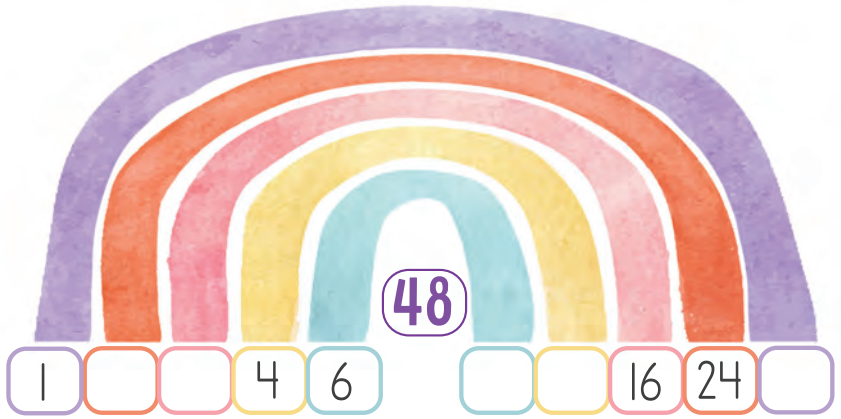
☐ ÷ ☐ = ☐

Dividend Divisor Quotient

Using the measuring tape from the math box, measure the line segments in inches.

JM = ___ in JK = ___ in MN = ___ in NL = ___ in

Write the missing factors for the number 48.



✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12 × 11 =	12 × 8 =	12 × 6 =	12 × 4 =	12 × 9 =	12 × 3 =
12 × 12 =	12 × 7 =	12 × 5 =	12 × 2 =	12 × 0 =	12 × 1 =

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Lesson 112

CONVERTING UNITS OF CAPACITY

Geometry

Say the name of each geometric solid aloud. Point to the solid with 2 faces, 0 edges, and 0 vertices.

○ Read to the child: We have learned about different units of capacity. Review equivalent units of capacity by writing the correct number in each box to make each statement true.

☐ quarts = 1 gallon

☐ pints = 1 gallon

☐ cups = 1 pint

☐ pints = 1 quart

Division can be used to convert units of capacity from smaller units into larger units. To convert 8 pints to quarts, we know that there are 2 pints in 1 quart. Circle groups of 2 pints. Each circled group is a quart. How many groups did you circle? Write this number in the box.

2 pints = 1 quart

8 pints ÷ 2 pints per quart = ☐ quarts

Notice that we divided 8 pints by 2 (the number of pints in each quart) to get our answer. Anytime you are converting from a smaller unit of measurement to a larger unit of measurement, such as from pints to quarts, you divide to find the answer.

○ Read to the child: Let's look at more examples. Elsie is helping her mom prepare for a fellowship gathering. She is in charge of the drink station. Elsie needs to make 12 quarts of punch. Let's help Elsie convert quarts to gallons to find the number of gallon jugs she will need. How many quarts are in a gallon? Write the number on the line. Then divide 12 quarts by the number of quarts in a gallon to find the number of gallons. Write your answer in the box.

12 ÷ ____ = ☐

qt qt per gal gal

Next, Elsie will make 18 cups of lemonade. She needs to convert cups to pints. How many cups are in a pint? Write the number on the line. Then divide 18 cups by the number of cups in a pint to find the number of pints. Write your answer in the box.

18 ÷ ____ = ☐

c c per pt pt

Finally, Elsie needs to bring 48 pints of water. How many gallon jugs will she need to use to hold the water? First, recall how many pints are in one gallon. Write the number on the line. Then divide the 48 pints by the number of pints in a gallon. Write the answer in the box.

48 ÷ ____ = ☐

pt pt per gal gal

○ **Liquid Conversions Activity:** Take the 10-sided dice from the math box. Read to the child: Roll the dice to see which problem to complete. Complete the problem. The answer is the number of units to shade in the container. Player 2 repeats these steps. If the problem for the number rolled has already been completed, roll again. The first player to shade the full container wins the game.

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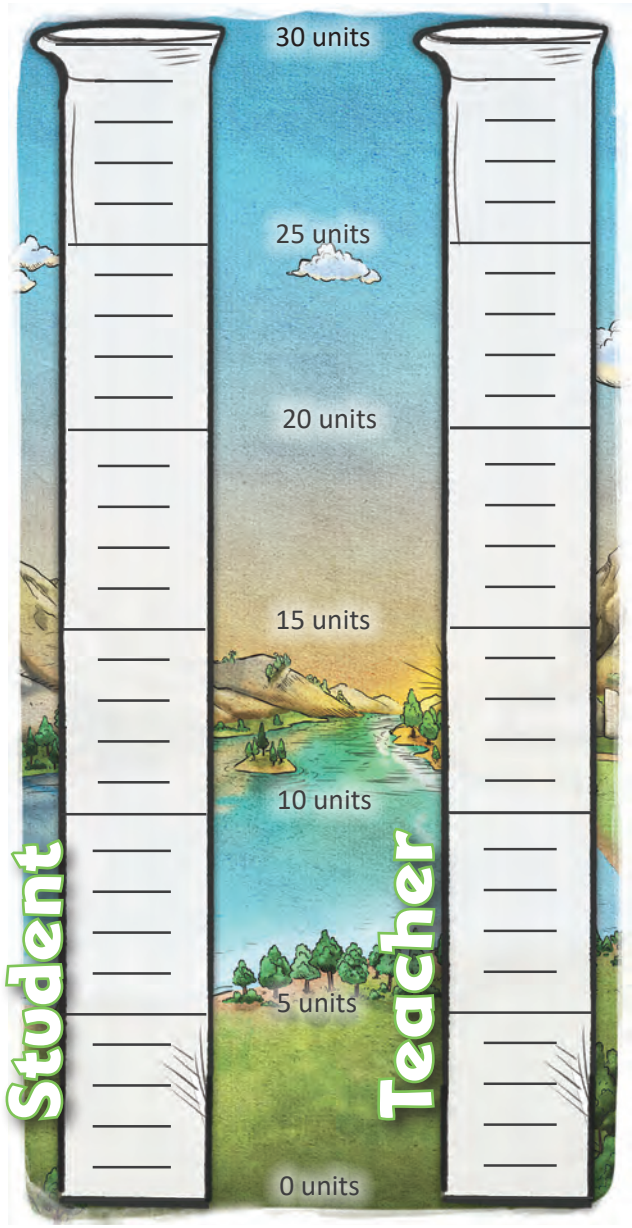
Liquid Conversions

1. 16 cups = ☐ pints
   16 c ÷ ___ c per pt = ___ pt
2. 20 quarts = ☐ gallons
   20 qt ÷ ___ qt per gal = ___ gal
3. 28 quarts = ☐ gallons
   28 qt ÷ ___ qt per gal = ___ gal
4. 24 pints = ☐ quarts
   24 pt ÷ ___ pt per qt = ___ qt
5. 12 cups = ☐ pints
   12 c ÷ ___ c per pt = ___ pt
6. 18 pints = ☐ quarts
   18 pt ÷ ___ pt per qt = ___ qt
7. 10 cups = ☐ pints
   10 c ÷ ___ c per pt = ___ pt
8. 40 quarts = ☐ gallons
   40 qt ÷ ___ qt per gal = ___ gal
9. 64 pints = ☐ gallons
   64 pt ÷ ___ pt per gal = ___ gal
10. 40 pints = ☐ gallons
    40 pt ÷ ___ pt per gal = ___ gal



LESSON PRACTICE

Use division to convert the measurements, using a whiteboard if needed. Then draw a line to connect equivalent measurements in the left and right columns.

Convert from cups to pints.

8 cups	8 pints
16 cups	6 pints
12 cups	4 pints

Convert from pints to quarts.

4 pints	2 quarts
14 pints	5 quarts
10 pints	7 quarts

Convert from quarts to gallons.

16 quarts	6 gallons
24 quarts	8 gallons
32 quarts	4 gallons

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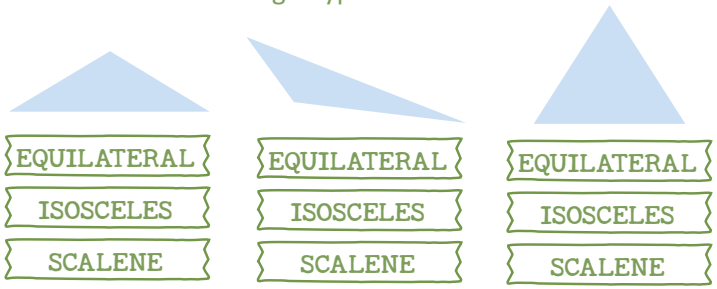
REVIEW & ACTIVITIES

Circle the correct triangle type.



EQUILATERAL	EQUILATERAL	EQUILATERAL
ISOSCELES	ISOSCELES	ISOSCELES
SCALENE	SCALENE	SCALENE

Finley drank two quarts of milk. Cross out the number of quarts he drank. Then circle the fraction that represents the fraction of milk that he drank.

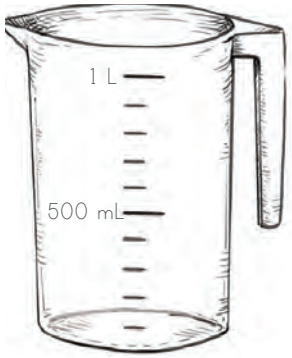
$\frac{2}{3}$ $\frac{4}{6}$ $\frac{2}{6}$ $\frac{2}{4}$

✧ Multiplication Fact Practice ✧

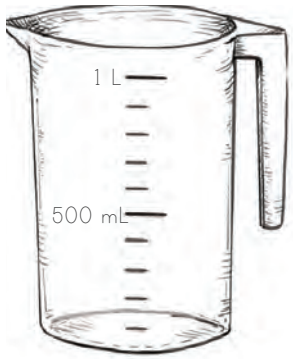
Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

11 × 12	8 × 12	9 × 12	6 × 12	12 × 3	12 × 0
10 × 12	4 × 12	5 × 12	7 × 12	12 × 2	12 × 1

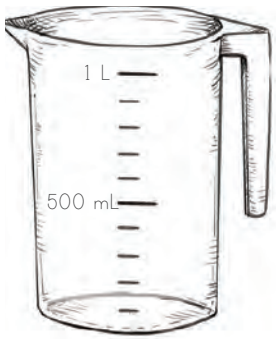
Color in the pitchers to show the correct amounts of liquid.



200 mL



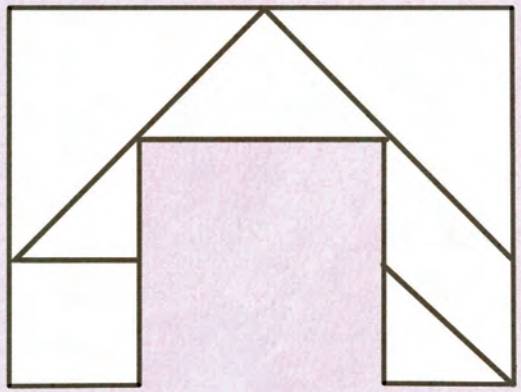
600 mL

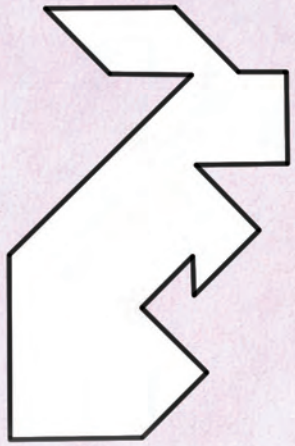


800 mL

Tangram Logic

Use all the orange tangram pieces from the math box to create these images.





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Lesson 113

FRACTION OF A SET: PART 2

Temperature

Complete the temperature chart on the back of the array mat. Optionally, determine the current temperature inside or outside your home.

Skip Counting

- Skip count by 3s from 3 to 36.
- Skip count by 30s from 30 to 300.

○ Read to the child: In a previous lesson, you learned that fractions can be used to represent part of a set as well as part of a whole. Review fractions of a set by answering the questions below.

What fraction of the shapes are stars?

$\frac{\square}{\square}$ of the shapes are stars

What fraction of the shapes are rhombuses?

$\frac{\square}{\square}$ of the shapes are rhombuses

○ Take 6 light-green triangles (pattern blocks) from the math box and set them in a pile in front of the child. Read to the child: In this lesson we will continue learning about fractions of a set. Suppose we want to find the number of triangles that make up $\frac{1}{2}$ of the set. Since the denominator of $\frac{1}{2}$ is 2, we begin by separating the 6 triangles into 2 equal groups. Put one group of triangles in front of you and one group of triangles in front of me. How many triangles do we each have? This means that $\frac{1}{2}$ of 6 is 3. Write a 3 in the box.

Number of groups being referred to → 1
Number of equal groups → 2
$\frac{1}{2}$ of 6 = ☐

Put the 6 triangles back into 1 pile. Suppose this time you want to find out how many triangles make up $\frac{1}{3}$ of the set. Since the denominator of $\frac{1}{3}$ is 3, begin by separating the triangles into 3 equal groups. How many triangles are in one group? This means that $\frac{1}{3}$ of 6 is 2. Write a 2 in the box.

$\frac{1}{3}$ of 6 = ☐

Let's see how this concept can be applied in a different situation. Mom was outside enjoying the beautiful day while picking ripe pears off the pear tree. She was planning to make her delicious pear crumble, which is Elsie and Finley's favorite.

Mom noticed that out of 8 pears, $\frac{1}{4}$ of them were ripe. What is the denominator of $\frac{1}{4}$? Circle the pears so there are 4 equal groups. How many pears are in one group? This means that $\frac{1}{4}$ of 8 is 2. Write a 2 in the box.

$\frac{1}{4}$ of 8 = ☐

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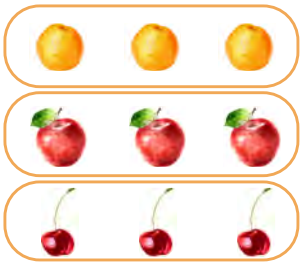
Now it's your turn! Suppose there are 9 pears and $\frac{1}{3}$ of them are ripe. Complete the problem by circling the pears in 3 equal groups, counting the number of pears in one group, and then writing your answer in the box.

$\frac{1}{3}$ of 9 = ☐

Draw a line to match each problem with the correct illustration. The denominator of each fraction shows the number of equal groups the set will be divided into. Then write the answer in the box.

$\frac{1}{2}$ of 8 = ☐

$\frac{1}{5}$ of 10 = ☐



$\frac{1}{3}$ of 9 = ☐

LESSON PRACTICE

PICKING PEARS Find the fraction of a set of 12 pears. You can use 12 shapes from the math box to help you complete these problems. Separate the pears into equal groups based on the denominators. Then write the number in one group in the box. The pears shown in the tree with the correct answers are the ripe pears. Pick each pear with a correct answer off the tree by drawing a circle around it.

12 total pears

$\frac{1}{2}$ of 12 = ☐ $\frac{1}{4}$ of 12 = ☐

$\frac{1}{6}$ of 12 = ☐ $\frac{1}{3}$ of 12 = ☐

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REVIEW & ACTIVITIES

Complete the problems.

2,357 × 4	3,686 × 3

Round each number to the nearest **ten thousand.** Write your answer in the box.

48,248	63,420
75,294	81,983

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

4 ×12	5 ×12	7 ×12	11 ×12
6 ×12	3 ×12	8 ×12	9 ×12

Draw a line to match the geometric solid to its name.

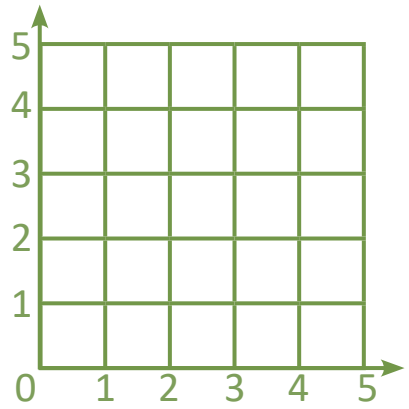
pyramid sphere cube

cylinder cone rectangular prism

1. Circle the shape that has 2 faces but no vertices.
2. Cross out the shape that has 0 edges, 0 vertices, and 0 faces.

Plot and label the points on the coordinate plane. Remember that the first number is found using the horizontal number line and the second is found using the vertical number line.

A (0, 2)
B (1, 4)
C (2, 3)
D (3, 4)
E (4, 2)



Connect the points in alphabetical order. Which letter do you make?

Write numbers for the Roman numerals, and then complete the problems.

LXVII

____ - 67

XCVIII

____ - 49

XXXVI

____ - 24

XLV

____ - 37

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Lesson 114

IDENTIFYING QUADRILATERALS, POLYGONS, CIRCLES, AND OVALS

Calendar

- On the calendar chart, write the ordinal number for each month. For example, January is the 1st month. Then answer the questions. Which month comes before the 9th month? Which month comes after the 12th month?

Skip Counting

- Skip count by 4s from 4 to 44.
- Skip count by 40s from 40 to 440.

Read to the child: Elsie and her family are going to the Highland games, which is an annual sporting competition in which Scottish family groups called clans participate. Each clan has a different coat of arms, which you can see on the flags below. The flags all have something in common; they each have four sides. Shapes with exactly four sides are called ***quadrilaterals.*** The word "quad" means four. Point to each shape and say its name.

Some Examples of Quadrilaterals

Rhombus

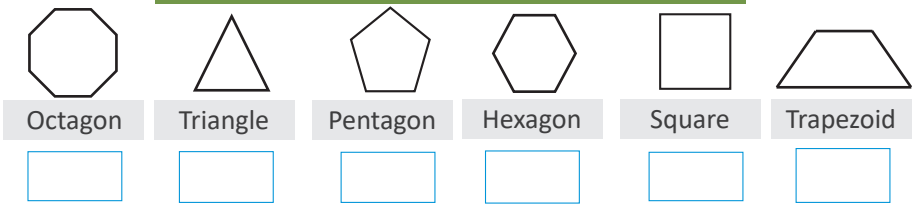
Rectangle

Square

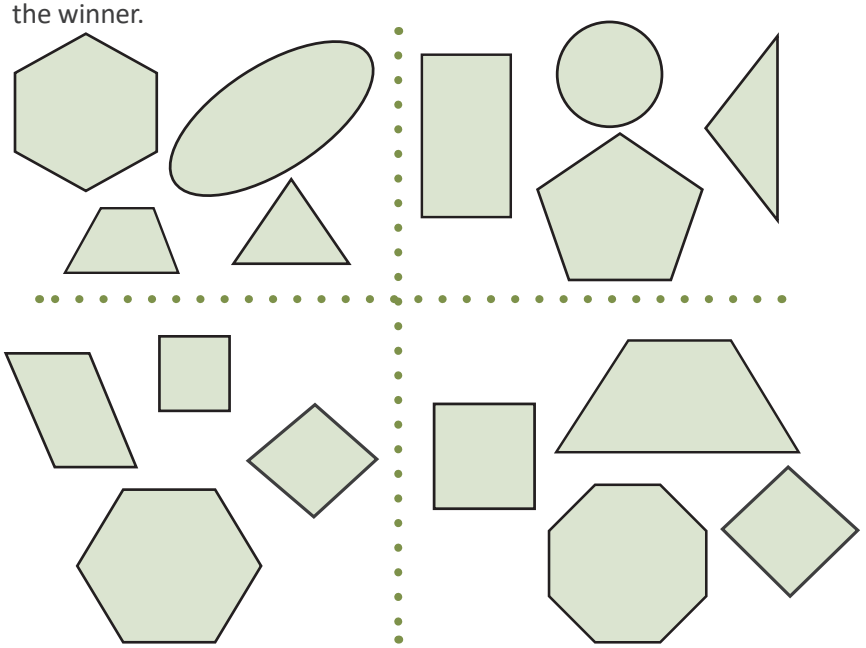
Parallelogram

Quadrilaterals are a type of polygon. ***Polygons*** are two-dimensional, closed shapes with straight sides. A rectangle is a quadrilateral and a polygon. In the next column are more examples of shapes that are polygons. Point to each shape and say its name. Then, underneath each shape, write how many sides it has.

Some Examples of Polygons



Read to the child: You get to be the judge of this Highland games event. Name the shapes in each group aloud, and then circle the one that has the most vertices of the group. Write the number of sides and vertices inside that shape. The shape with the most vertices of all the shapes is the winner.



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LESSON PRACTICE

HIDDEN at the HIGHLAND GAMES

Step 1: Find the shape hidden nearest to each coordinate below. Write its name in the white box. The first one is done for you.

circle			
1 (9,1)	2 (9,4)	3 (1,4)	
			7 (16,3)
4 (14,2)	5 (4,3)	6 (1,1)	

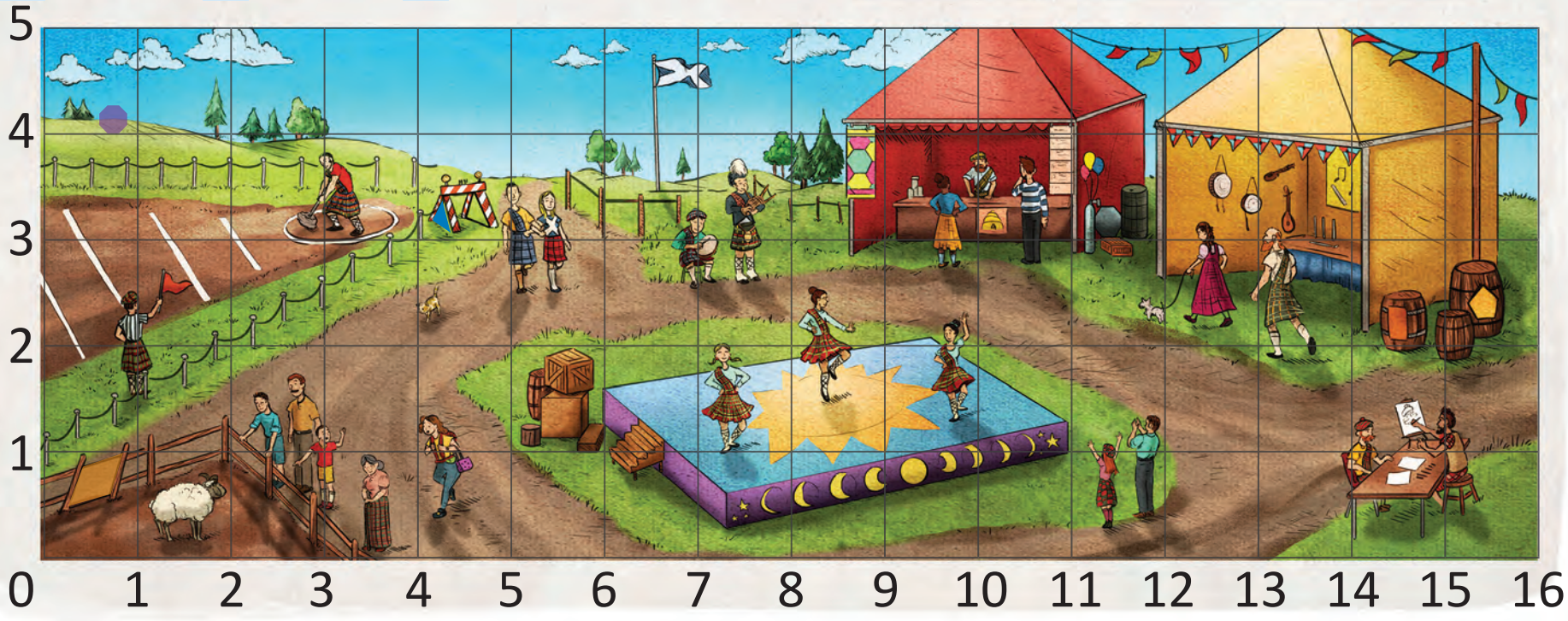
Step 2: In the green boxes below, write the number of sides of each shape you found in the order shown by the blue boxes next to the shapes. Shape number 1 is done for you as an example.

Step 3: Match the number in the green box to a letter in the key below and write that letter above the line to find the name of an instrument played at the Highland games.

1	2	3	4	5	6	7
0						

KEY

4 = p	0 = b	3 = i
6 = a	8 = g	5 = e



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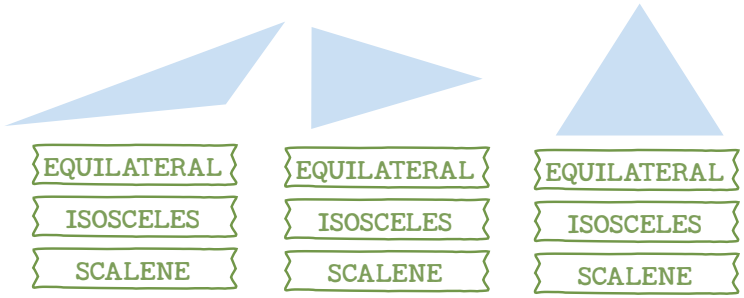
REVIEW & ACTIVITIES

Circle the correct triangle type.



A World of Angles

Use colored pencils to trace angles in the pictures below. Use red for right angles, blue for acute angles, and green for obtuse angles. Trace at least two angles in each picture.

Multiplication Fact Practice

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

7	4	11	12	10	5
×12	×12	×12	×12	×12	×12

All the items in the grid below were invented or patented by someone from Scotland, except for one item. Write the answers in the boxes below, and then circle the matching number in the grid. The item not circled was not invented or patented by a Scotsman.

$(6 + 10) \div 2$ ☐

$12 - 4 + 7$ ☐

$6 \times (8 \div 2)$ ☐

$35 \div 7 \times 2$ ☐

12 cups = ☐ pints

20 quarts = ☐ gallons

16 pints = ☐ gallons

9 tsp = ☐ Tbsp

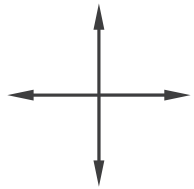
Scottish Inventions

8 Television	6 Color Photos	3 Penicillin
15 Toaster	5 Refrigerator	10 Steam Engine
2 Flush Toilet	9 Radio	24 Telephone

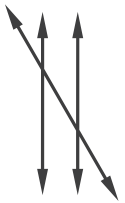
Finley saved $\frac{1}{4}$ of the 8 quarts of milk to use tomorrow. How many quarts did he save? Hint: Circle 4 equal groups of milk. The number of quarts in one group is $\frac{1}{4}$ of the 8 quarts.

$\frac{1}{4}$ of 8 = ☐

Circle the types of lines that are shown in each image.



perpendicular
parallel
intersecting



perpendicular
parallel
intersecting

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Lesson 115

MIXED STORY PROBLEMS

Capacity

Play the "Capacity Dice Game" as explained on page 352.

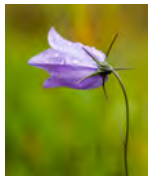
Read to the child: Today, we will review how to complete multiplication and division story problems. Remember to look for information that you need to answer a question or complete a problem. We will also continue to use the strategy of circling the information and underlining the question to help us complete problems.

Elsie had 4 flower vases. She arranged 6 thistles in each vase. How many thistles did she use for her flower arrangements?

First, you find the information that is given and circle it. In this problem, you would circle "4 flower vases" and "6 thistles in each vase." Next, underline the question that needs to be answered: "How many thistles did she use for her flower arrangements?" We know how many flowers were in *each* vase, and we are asked to find the total number of thistles Elsie used. That means we can multiply the number of thistles in each vase by the number of vases to find the answer. Complete the problem below.

4 × 6 = ☐ total thistles used

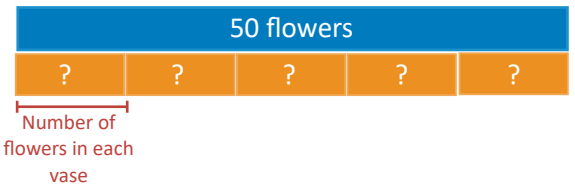
4 vases × 6 thistles in each vase



Let's look at a different example.

Elsie had a total of 50 Scottish bluebell flowers. She wanted to arrange them equally into 5 vases. How many flowers should she put into each vase?

Start by circling what you know and underlining the question you need to answer. Division can be used any time you are given the total number of objects and asked to separate the objects equally into groups. This story problem gives you the total number of flowers and asks you to find the number of flowers in *each* vase. That means you can use division. Write the quotient of 50 divided by 5 in the blue box.



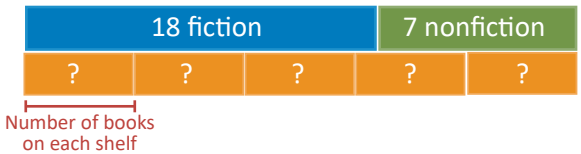
50 ÷ 5 = ☐ flowers in each vase

50 flowers ÷ 5 vases

Some story problems will require you to use more than one step to find the answer. These are called multistep story problems. Here's an example.

Finley is organizing his books on a bookcase. He has 18 fiction books and 7 nonfiction books. Finley wants to put an equal number of books on each of the 5 shelves. How many books should he put on each shelf?

Circle the important information and underline the question. First, we can add to find the total number of books. Write the sum of 18 plus 7 in the yellow box. Now that we have the total number of books, we can divide them by the number of shelves there are on the bookcase. Write the total number of books in the yellow box and divide that by the number of shelves to find the number of books on each shelf.



18 + 7 = ☐ total books

18 fiction books + 7 nonfiction books

☐ ÷ 5 = ☐ books on each shelf

total books ÷ 5 shelves

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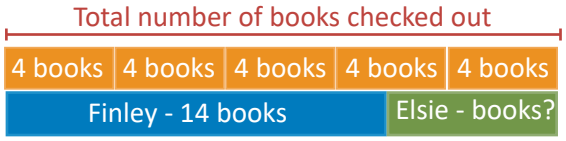
Let's walk through one more problem together.

Finley and Elsie visited the library once a week. Altogether they checked out 4 books per week for 5 weeks. Finley read 14 of the books, and Elsie read the rest. How many books did Elsie read?

Circle the important information and underline the question. First, we need to multiply the number of books checked out per week by the number of weeks. Write the product of 4 times 5 in the yellow box. Now that we know the total number of books checked out, we can subtract the number of books that Finley read to find the number of books that Elsie read.



4 × 5 = ☐ total books
(4: books per week; 5: weeks)

☐ − 14 = ☐ number of books Elsie read
(☐: total books; 14: number of books Finley read)

Complete the following multistep story problems on your whiteboard. Circle the important information and underline the question. Then decide which steps are needed to complete each problem.

1. Finley is reading a book that has 22 chapters. He has already read 10 chapters. Finley's goal is to finish his book in the next 3 days. How many chapters must he read each day in order to reach his goal?

2. Elsie's bookcase has 8 shelves. There are 4 books on each shelf. Elsie also has 2 books sitting on her desk. How many books does Elsie have altogether?

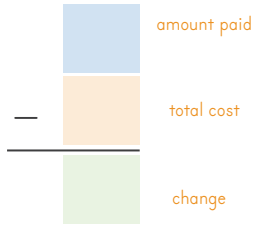
Note to Parent/Teacher: While the child is working on the first two problems from the Lesson Practice, punch out the story-problem cards from the Lesson 115 page in the Appendix. Select a room (schoolroom, dining room, kitchen, etc.) in which to hide the six story problems. The child will search for the cards and complete the problems as part of the Lesson Practice.

LESSON PRACTICE

Read each story problem carefully. Circle the important information and underline the question. Then use the correct operations to find the answer.

Finley bought 3 souvenirs from the festival gift shop. Each souvenir cost $6. He paid the cashier $20. How much change will Finley receive?

___ (number of souvenirs) × ___ (cost of a souvenir) = ☐ total cost



As the family went to the parking lot to go home, they noticed 3 rows of parking spaces in front of their car. Each row had 20 spaces. 5 of the parking spaces were empty. How many spaces were filled with cars? Use the space below to complete the problem.

Search and Complete the Story Problems!

Search for the story problems in the room where your parent or teacher hid them. Can you successfully find all six story problems? After you find them, use a whiteboard to complete the problems. Write the answers on the lines below after you complete each one.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____

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REVIEW & ACTIVITIES

A

Using the inch side of your measuring tape, create the following line segments by drawing and labeling the endpoints on the line above.

1. AE = 8 in
2. AB = 2in
3. BD = 5 in
4. AC = 4 in

Now that those points are on the line, measure these line segments in inches and fill in the blanks.

CD = ____ in
AD = ____ in
DE = ____ in
BC = ____ in

Complete the conversions.

1 ft = _____ in **1 yd = _____ ft**

2 yd = _____ ft **3 ft = _____ in**

1 yd = _____ in **3 ft = _____ yd**

Complete the division problems and fill in the blanks below to learn more about Scotland.

R 14 cups = ☐ pints
14 c ÷ ___ c per pt = ____ pt

E 16 pints = ☐ gallons
16 pt ÷ ___ pt per gal = ____ gal

F 24 quarts = ☐ gallons
24 qt ÷ ___ qt per gal = ____ gal

I 15 tsp = ☐ Tbsp
15 tsp ÷ ___ tsp per Tbsp = ____Tbsp

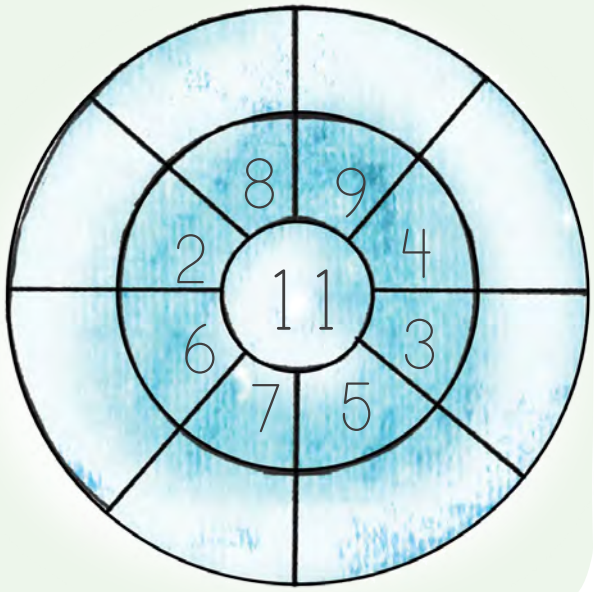
Edinburgh, Scotland, was the first city in the world to have a _ _ _ _ brigade.
6 5 7 2

Draw a line to match the shape to its name. Circle the shape that is a quadrilateral.

oval pentagon hexagon parallelogram triangle

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then multiply the inner numbers on the target and write the answers on the outer ring.



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Lesson 116

CONGRUENT AND SIMILAR SHAPES

Mental Math

Multiply the following in your head and answer aloud:

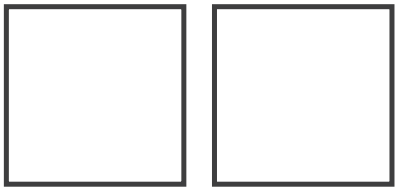
11 × 8 11 × 4 11 × 5 11 × 9

Calendar

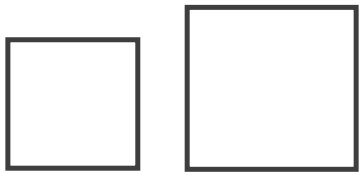
- What was the date a week ago?
- What will be the date one week from tomorrow?
- How many days are in 4 weeks? (7 days per week × 4 weeks)
- How many months are in 5 years? (12 months per year × 5 years)

○ Take the measuring tape from the math box and read to the child: Measure the line segments below. Are they the same length? Yes, they are ***congruent***, which means they have the exact same shape and size.

Similar shapes have the same shape but not necessarily the same size; similar shapes are proportional. If we can shrink or expand a shape to be exactly the same size as another shape, those shapes are proportional. Shapes are congruent and similar if they are the same shape and size. Two of the same shape that are not the same size are similar but not congruent. The squares on the left are congruent and similar while the squares on the right are only similar.



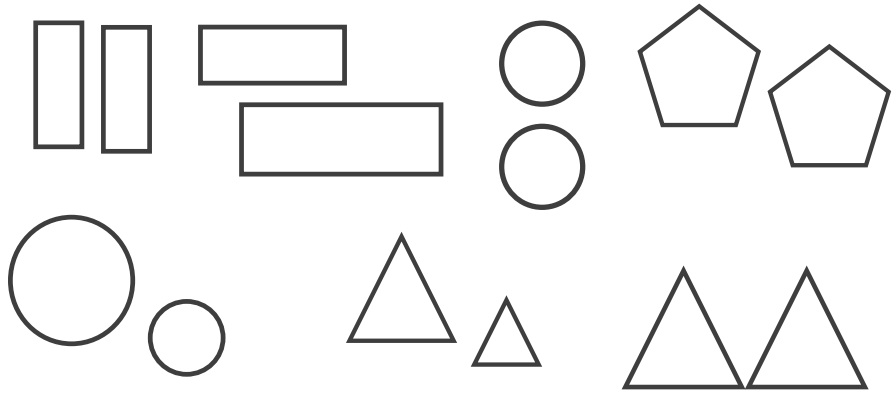
Same Shape and Size
Congruent and Similar



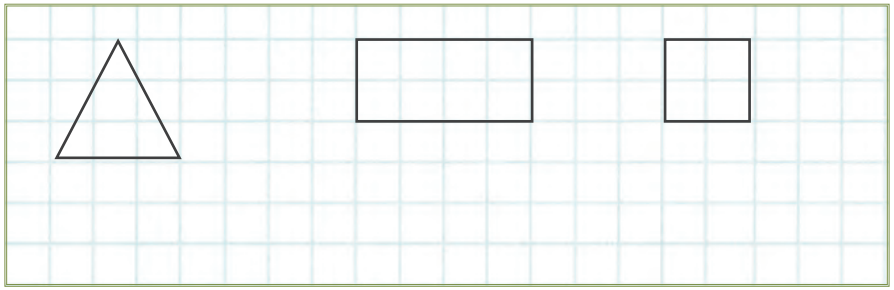
Same Shape, Different Size
Similar

○ Read to the child: Draw lines from the pairs of shapes to the correct labels. If shapes are similar, but not congruent, it means they are the same shape, but not the same size. To be congruent and similar, they must be the same shape and size.

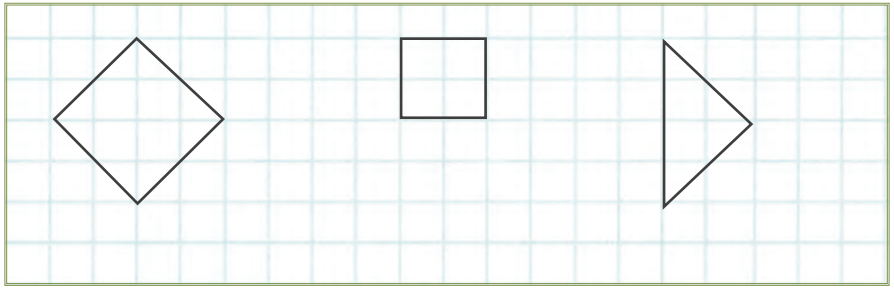
SIMILAR, NOT CONGRUENT | CONGRUENT & SIMILAR



○ Read to the child: Draw shapes that are congruent to the shapes given using the grids as guides.



○ Read to the child: Draw shapes that are similar but not congruent to the shapes given using the grids as guides.



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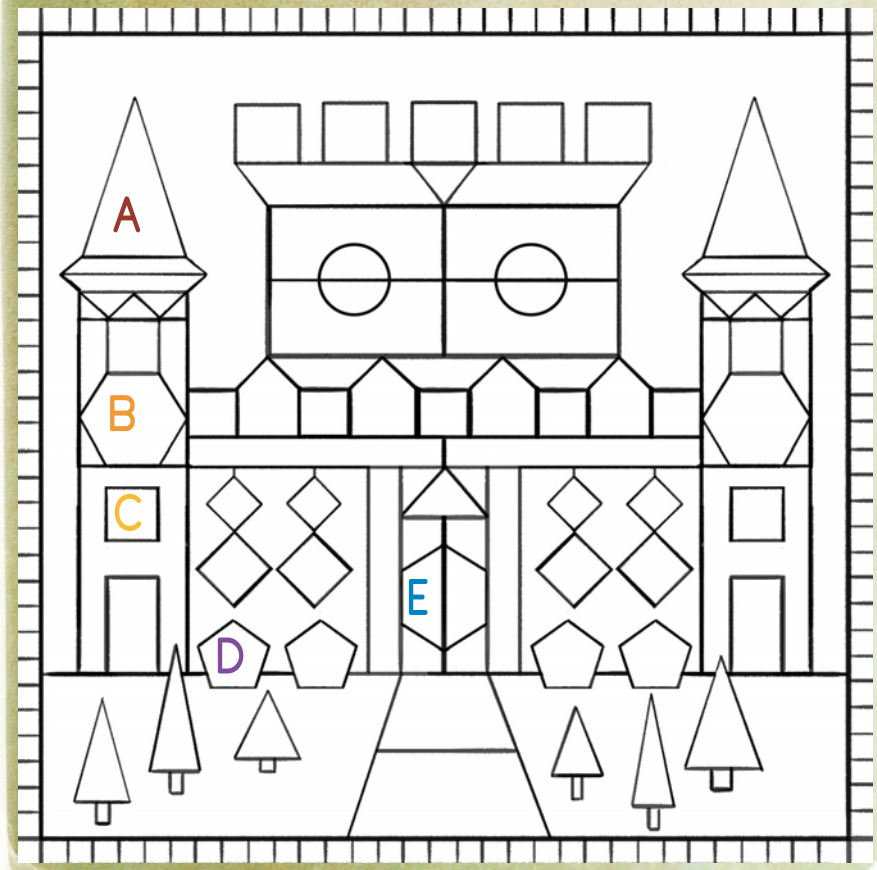
LESSON PRACTICE

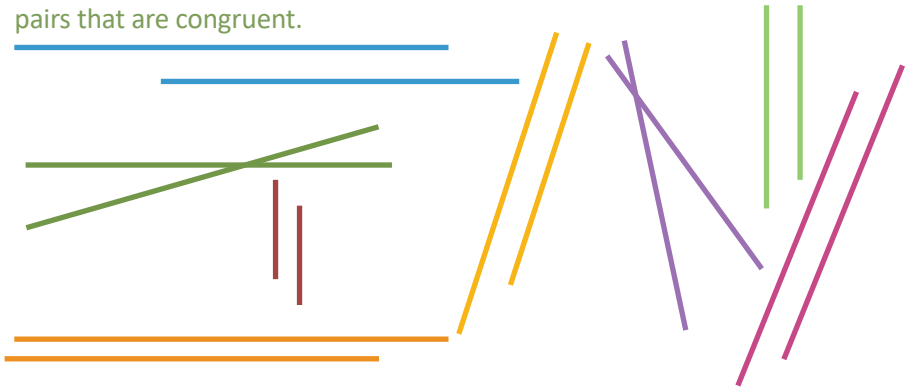
Name That SHAPE

Look at the image below to answer the questions. Optionally, you may color the image after completing the lesson today.

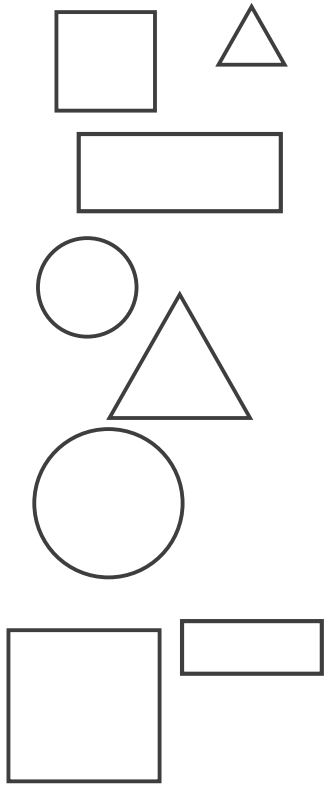
1. Color a shape that is congruent to shape A red.
2. Color two shapes that are similar to shape A green.
3. Color a shape that is congruent to shape B orange.
4. Color a shape that is similar to shape C yellow.
5. Color a shape that is congruent to shape D blue.
6. Color a shape that is congruent to shape E purple.

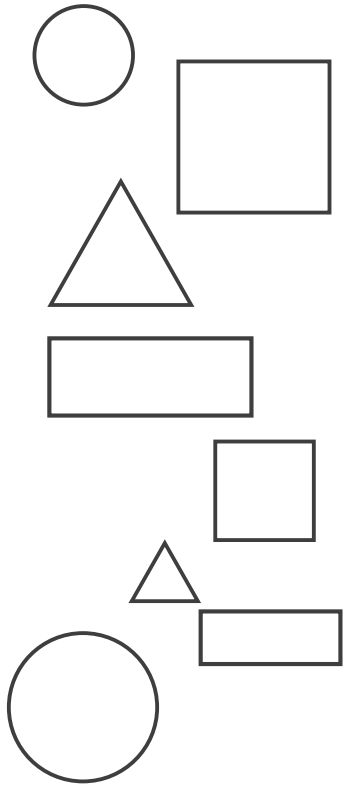


Use the measuring tape to measure the pairs of lines. Circle the pairs that are congruent.



Draw a red line to match the shapes on the left that are congruent to shapes on the right. Then draw a blue line to match the shapes on the left to the ones on the right that are similar but not congruent. Each shape on the left will have two lines.





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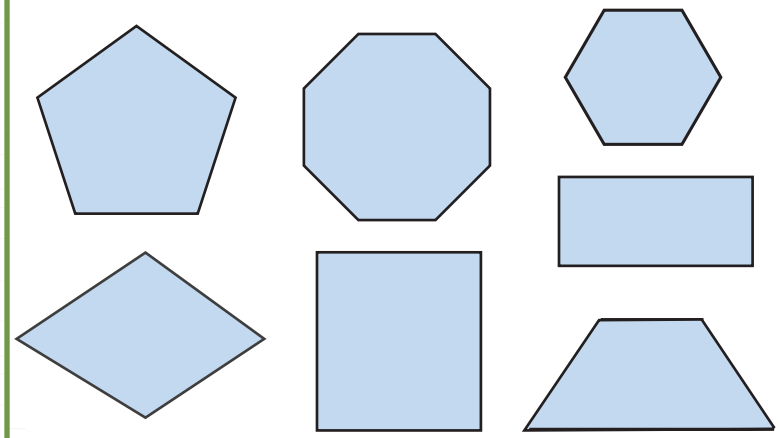
REVIEW & ACTIVITIES

Round each number to the nearest **hundred thousand.** Write your answer in the box.

6,148,248	523,420	795,294

Write the missing factors for the number 24.

Inside each shape write the number of sides the shape has. Circle the shapes that are quadrilaterals.



Complete the multiplication problems.

$$\begin{array}{r} 6{,}718 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 1{,}734 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2{,}682 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3{,}561 \\ \times \quad 2 \\ \hline \end{array}$$

Complete the following story problems on your whiteboard. Circle what you know and underline the question. Then decide if you need to multiply or divide to find the answer.

1. Elsie made 3 bouquets. She put 9 flowers into each bouquet. How many total flowers did she use to make the bouquets?
2. Mom has 30 flowers. She wants to put 6 flowers in each vase. How many vases will she need?
3. There are 7 flowers in the flower pot. They each have 4 petals. How many total petals are there?

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

12 × 11	12 × 8	12 × 6	12 × 4	12 × 9
12 × 12	12 × 7	12 × 5	12 × 2	12 × 3

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Lesson 117

UNIT REVIEW

Calendar

- On the calendar chart, write the number of days in each month in a LEAP year.
- What is the 8th month? What is the name of the month that comes before the 5th month?

Skip Counting

- Skip count by 7s from 7 to 84.
- Skip count by 70s from 70 to 700.

○ Read to the child: Today, we are going to review the concepts you have been practicing in Unit 4. We will play some games together, and you will do some activities independently.

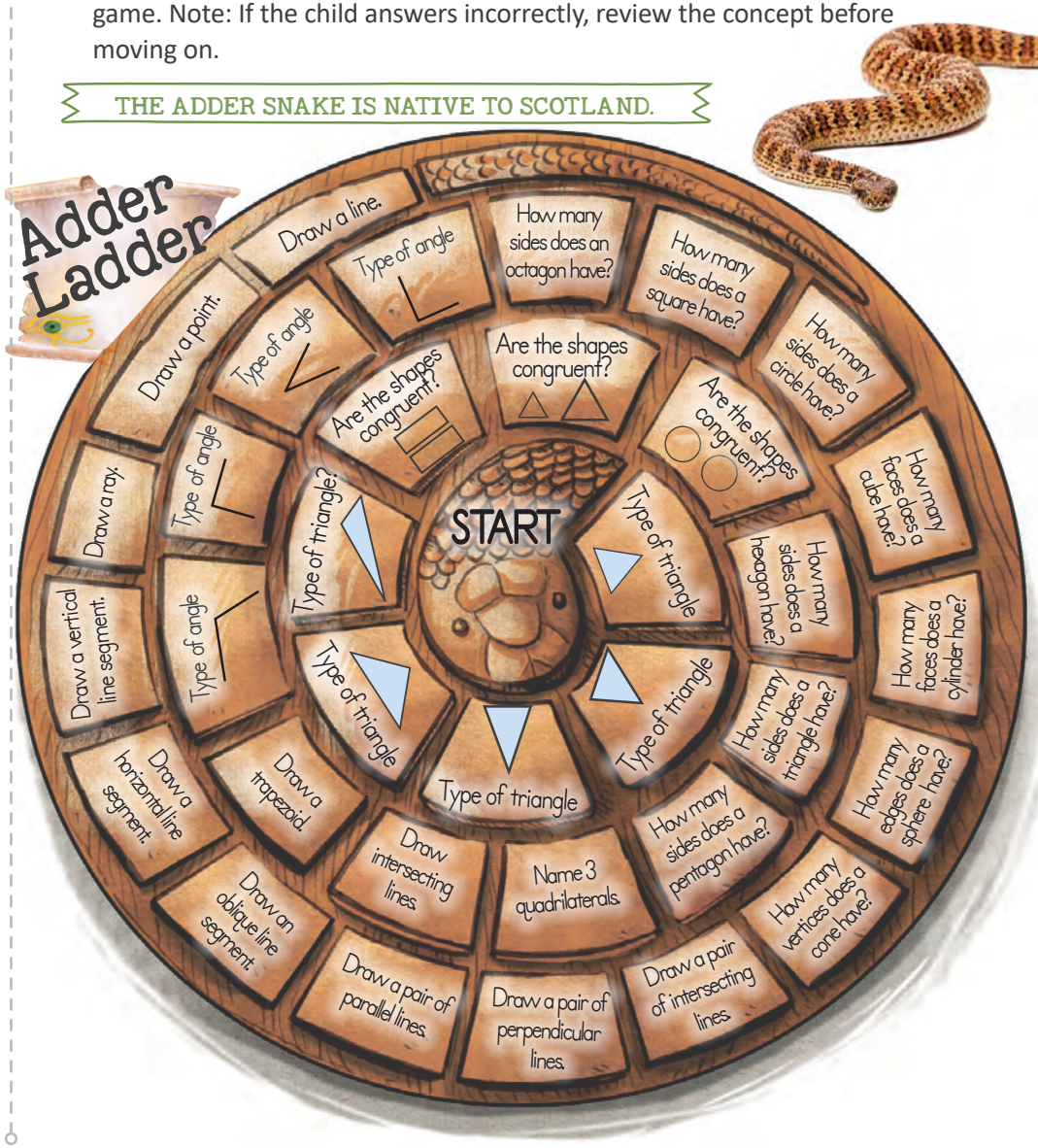
TIC–TAC–QUOtient

○ **Game—TIC-TAC-QUOtient:** Take the 10-sided dice from the math box. Read to the child: Roll the dice. If it lands on an even number, you get to pick a problem in an even box. If it lands on an odd number, you get to pick a problem in an odd box. Some problems may have a remainder. If completed correctly, write X or O in that box. Then I will take a turn. The first player to get 3 in a row wins the game.

24 ÷ 4 ODD	48 ÷ 8 EVEN	21 ÷ 3 ODD
17 ÷ 5 EVEN	15 ÷ 2 ODD	33 ÷ 6 EVEN
30 ÷ 3 ODD	56 ÷ 7 EVEN	18 ÷ 9 ODD

○ **Game—Adder Ladder:** Take the 10-sided dice and the game pawns from the math box. Place the game pawns on "START" in the center of the circle. Read to the child: We will play this game to help us review geometry concepts learned in this unit. Player 1 rolls the dice and moves that number of spaces. He or she answers the question or completes the task, using a whiteboard if needed. Player 2 repeats the same steps. The first player to climb the adder ladder and reach the snake's tail wins the game. Note: If the child answers incorrectly, review the concept before moving on.

THE ADDER SNAKE IS NATIVE TO SCOTLAND.


Adder Ladder
START
Draw a line.
Type of angle
How many sides does an octagon have?
How many sides does a square have?
How many sides does a circle have?
How many faces does a cube have?
How many faces does a cylinder have?
How many edges does a sphere have?
How many vertices does a cone have?
Draw a pair of intersecting lines.
Draw a pair of perpendicular lines.
Draw a pair of parallel lines.
Draw an oblique line segment.
Draw intersecting lines.
Name 3 quadrilaterals.
How many sides does a pentagon have?
Draw a horizontal line segment.
Draw a trapezoid.
Type of triangle
How many sides does a triangle have?
Draw a vertical line segment.
Type of angle
How many sides does a hexagon have?
Type of triangle
Draw a ray.
Type of angle
Type of triangle
Draw a point.
Type of angle
Are the shapes congruent?
Are the shapes congruent?
Are the shapes congruent?

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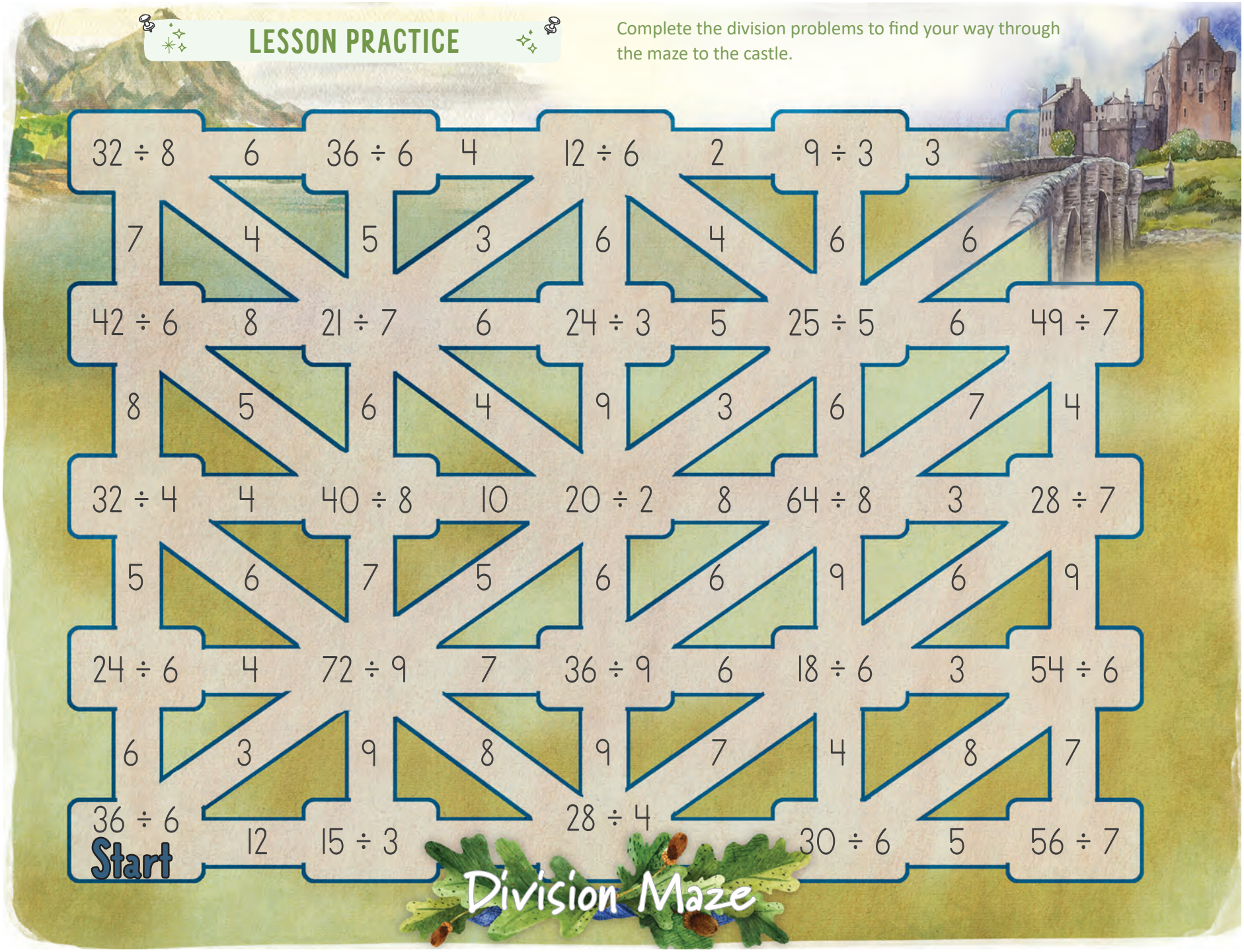
LESSON PRACTICE

Complete the division problems to find your way through the maze to the castle.



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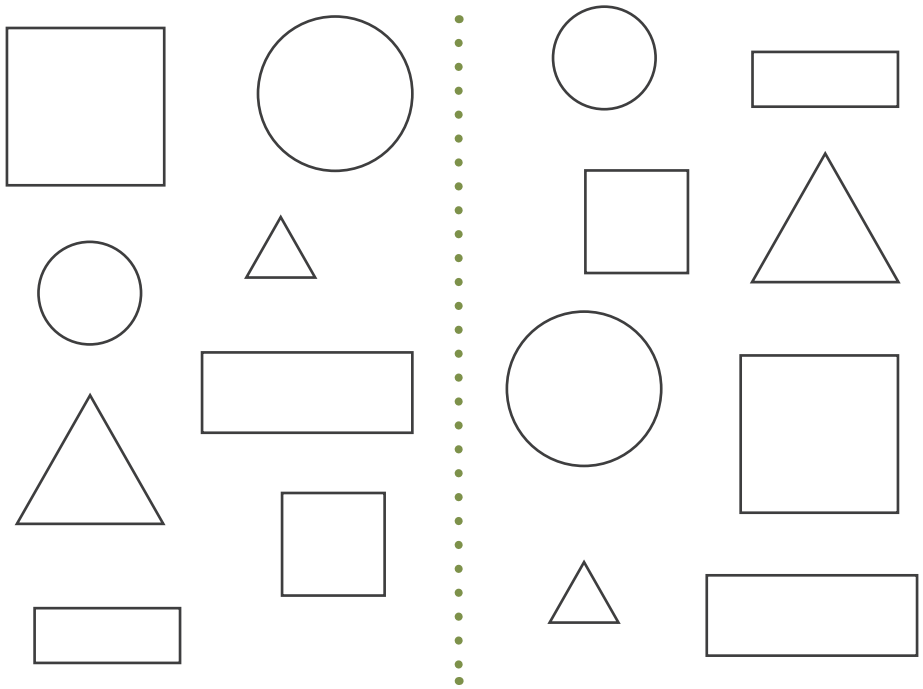
REVIEW & ACTIVITIES

Draw a red line to match the shapes on the left that are congruent to shapes on the right. Then draw a blue line to match the shapes on the left to the ones on the right that are similar but not congruent. Each shape will have two lines.



Complete the problems below to find the missing side length in these area problems. area = length × width

32 sq cm = 4 cm × ____ 40 sq cm = 8 cm × ____

36 sq cm = ____ × 9 cm 42 sq cm = ____ × 6 cm

Fill in the patterns. The second one uses Roman numerals.

____, ____, -5, -4, -3, ____, ____, ____, 1, 2, ____, ____

V, X, XV, ____, ____, ____, ____, ____, ____

Draw a line to match the geometric solid to its name.

pyramid sphere cube

cylinder cone rectangular prism

✧ Multiplication Fact Practice ✧

Put a check mark in the green box when you have practiced multiplication facts Set D for 10 minutes or more. Then complete the problems below.

11 × 12	10 × 12	3 × 12	12 × 5	12 × 7	12 × 8
2 × 12	12 × 6	5 × 12	7 × 12	12 × 9	12 × 4

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Lesson 118

COURSE REVIEW

Temperature

Fill in the temperature chart on the back of the array mat. Optionally, find the temperature either inside or outside your house today in either degrees Fahrenheit or Celsius.

Skip Counting

- Skip count by 8s from 8 to 96.
- Skip count by 80s from 80 to 800.

○ Read to the child: Today, we are going to review the concepts you have learned in this course. We will play some games together, and you will do some activities independently.

Ready, Set, Roll! Take the capacity dice from the math box. You will also need 2 different colored pencils. Player 1 rolls the capacity dice and colors in a box with an equivalent measurement. For example, if the capacity dice land on 1 gallon and 4 quarts, you would color in the box that has 8 quarts. Player 2 repeats the process with a different colored pencil. If there is no match or the box is already colored in, the player's turn is over. The first player to color in 5 boxes wins the game!

4 c	8 qt	5 qt	6 c
20 c	18 c	4 pt	16 pt
9 pt	8 c	10 pt	3 pt

○ **Game—Multiplication Tour:** Take the 6-sided dice and the game pawns from the math box. Place the game pawns on "Start." Read to the child: We will take turns rolling the dice and moving around the map by completing the problems. If a player gets an answer wrong, then he or she must repeat that problem on the next turn. You may use a whiteboard if needed. The first person to travel around Scotland two times is the winner.

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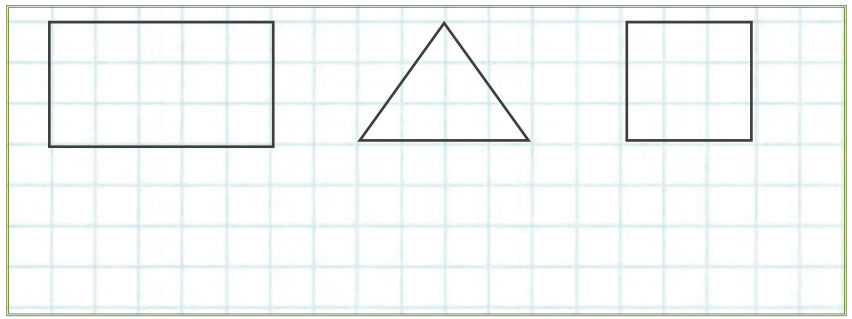
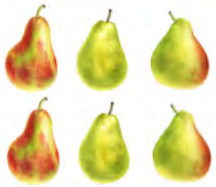
REVIEW & ACTIVITIES

Draw shapes that are congruent to the ones given using the grids as guides.



There are 6 pears and $\frac{1}{3}$ are still green. How many of the pears are green? Write the answer in the box.

$\frac{1}{3}$ of 6 = ☐



Mixed Number Puzzle

Complete each problem by **adding or subtracting** the mixed numbers. Start in the top left and move across and down to find answers. Match the mixed number in the orange box to the mixed number below to find the national bird of Scotland.

$2\frac{2}{5}$	+	$1\frac{1}{5}$	=	
−		+		−
$1\frac{2}{5}$	−	$1\frac{1}{5}$	=	
=		=		=
	+		=	

golden eagle

robin redbreast

Complete the problems to find the answer to the riddle.

Which animals on Elsie and Finley's homestead are the quietest?

287 + 195 (P)	752 − 213 (S)	32 × 4 (E)
291 × 7 (T)	1,041 × 2 (H)	

2,037	2,082	128	539	2,082	2,082	2,082	128	128	482	

Compare the numbers and Roman numerals using <, >, or =.

LVI	◯	XXX
40	◯	XLV
12	◯	XII
IX	◯	VIII
VII	◯	X
C	◯	LX

Round each number to the circled place value. Write the answer in the box.

549,871,369 → ☐

479,648,537 → ☐

325,786,543 → ☐

178,399,437 → ☐

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MULTIPLES MAGNET

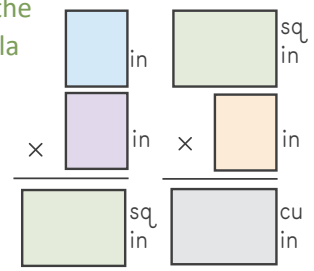
This magnet attracts multiples of 12. Circle the multiples of 12 below.

6 12 18 20 24 28 32 36

40 44 48 56 60 68 72

78 82 84 90 96 98 100

Find the volume of the box. (Use the formula volume = length × width × height.)



Complete the division problems.

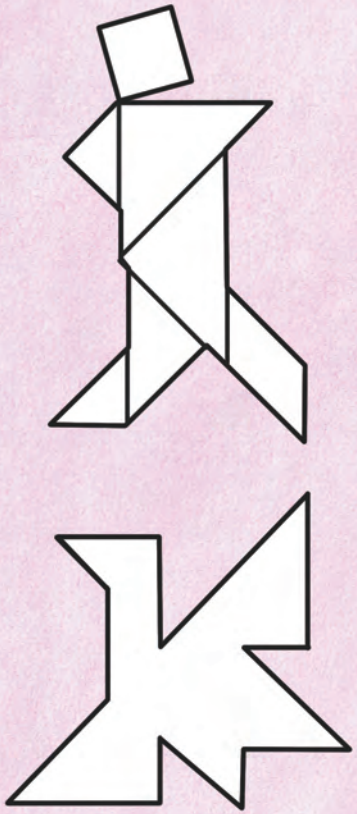
14 ÷ 2 = ☐ 16 ÷ 2 = ☐ 20 ÷ 4 = ☐

12 ÷ 3 = ☐ 18 ÷ 3 = ☐ 21 ÷ 3 = ☐

Write the factors for the number 18.

Tangram Logic

Use the orange tangram pieces to create these images.



Multiplication Fact QUIZ – Set D

Practice multiplication facts Set D for 10 minutes. Then complete the problems in this section. Have your parent or teacher record the ones you got right on the Mastery Chart on page viii.

11 × 12	10 × 12	9 × 12	12 × 12
8 × 12	6 × 12	5 × 12	7 × 12
4 × 12	3 × 12	12 × 10	12 × 11
12 × 7	12 × 9	12 × 6	12 × 8
12 × 3	12 × 4	12 × 2	12 × 0

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LESSONS 119-120

COURSE ASSESSMENT

Parent/Teacher

Read the following information aloud to the child: This assessment is different from others you have taken in this course. Instead of covering only concepts taught in Unit 4, this assessment covers concepts you have learned throughout the entire course. Problems in this assessment have been carefully designed to assess you on multiple skills at once. For example, a single multiplication question can cover multiplying large numbers and multiplying with money. A story problem can assess multiplication, algebraic thinking, and area finding. This assessment does not cover every skill you learned in Math 3. Instead, it focuses on skills you need to know as you start Math 4.

Here are some tips. First, make sure to read the instructions carefully. Second, do not rush through exercises you think you already know. Third, if you start to get frustrated with one section, try skipping to a different section and then coming back later. The sections do not need to be completed in order.

For Lesson 119, have the child complete all the exercises with PURPLE headers only. Correct the work. If the child makes one or more mistakes in a section, explain the concept and check the orange "Additional Practice" checkbox for that section.

For Lesson 120, have the child complete all the ORANGE sections **that are checked**. If the child still makes multiple mistakes, make sure the child understands why. All the principles will be reviewed again in upcoming courses. If the child has only a few or no orange sections to practice, the child has completed the course!

Student

FRACTIONS

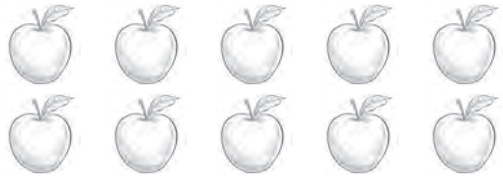
Circle the mixed numbers.

$2\frac{1}{2}$ $7\frac{1}{2}$ $\frac{3}{4}$ $\frac{1}{3}$ $5\frac{7}{9}$

Use the correct symbol (<, >, =) to compare.

$\frac{1}{8} + \frac{1}{8} \bigcirc \frac{7}{8} - \frac{5}{8}$ $2\frac{1}{5} + 1\frac{2}{5} \bigcirc 5\frac{4}{5} - 1\frac{2}{5}$

Circle 5 equal groups of apples. Then color $\frac{1}{5}$ of the apples red.



Additional Practice

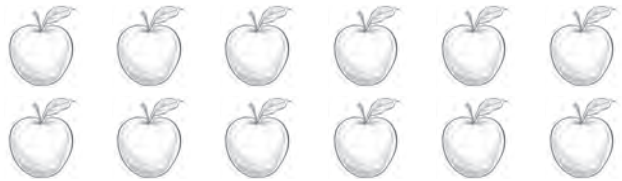
Circle the mixed numbers.

$4\frac{2}{3}$ $\frac{5}{6}$ $\frac{3}{5}$ $2\frac{1}{4}$ 7

Use the correct symbol (<, >, =) to compare.

$\frac{2}{7} + \frac{2}{7} \bigcirc \frac{6}{7} - \frac{4}{7}$ $3\frac{1}{6} + \frac{2}{6} \bigcirc 4\frac{5}{6} - \frac{2}{6}$

Circle 3 equal groups of apples. Then color $\frac{1}{3}$ of the apples green.



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DIVISION

Complete the division problems.

9 ÷ 3 = ☐

30 ÷ 6 = ☐

32 ÷ 8 = ☐

24 ÷ 4 = ☐

47 ÷ 5 = ☐ R ☐

18 cups = ☐ pints

(18 c ÷ ___ c per pt = ___ pt)

Additional Practice

Complete the division problems.

16 ÷ 2 = ☐

20 ÷ 5 = ☐

21 ÷ 7 = ☐

40 ÷ 4 = ☐

20 ÷ 9 = ☐ R ☐

24 pints = ☐ quarts

(24 pt ÷ ___ pt per qt = ___ qt)

MULTI-DIGIT MULTIPLICATION

Find the products below.

204	312	7,000	$16.25
× 2	× 6	× 5	× 3

Complete the story problem.

Finley and Elsie visited the library once a week. They checked out a total of 6 books per week for 3 weeks. Finley read 8 of the books, and Elsie read the rest. How many books did Elsie read?

Additional Practice

Find the products below.

322	106	9,000	$8.65
× 3	× 5	× 4	× 2

Complete the story problem.

Elsie had 2 dozen roses. She wanted to organize them into 4 vases. How many flowers will each vase have?

© Jenny Phillips

ORDER OF OPERATIONS

Use the order of operations to complete each problem. Remember to work from left to right with multiplication and division, and then left to right with addition and subtraction.

2 + 12 - 8 =

6 × 4 ÷ 3 =

28 - 10 ÷ 2 =

25 + 3 × 5 =

3 × 5 - 1 + 8 =

(15 + 15) ÷ 3 =

Additional Practice

Use the order of operations to complete each problem.

20 - 16 + 8 =

2 × 6 ÷ 4 =

25 ÷ 5 + 5 =

60 - 8 × 6 =

4 × 5 ÷ 2 =

(10 + 14) ÷ 6 =

NUMBERS THROUGH THE MILLIONS

Use the following number to complete the tasks.

81,367,294

Circle the digit in the ten millions place.

Expanded Form:

Word Form:

Round to the nearest ten thousand:

Additional Practice

Use the following number to complete the tasks.

5,263,408

Circle the digit in the hundred thousands place.

Round to the nearest million:

Expanded Form:

Word Form:

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MISSING NUMBERS

Find the value of N.

$5 \times N = 15$ $\quad N =$ _____

$N + 25 = 40$ $\quad N =$ _____

$21 - N = 15$ $\quad N =$ _____

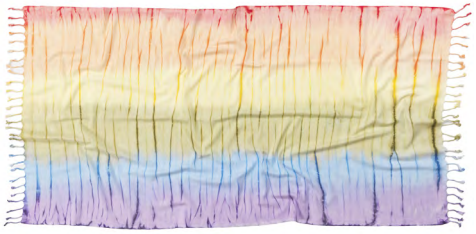
Circle the missing factor.

$6 \times \_\_ = 48$
4 6 8

35 sq cm = __ cm × 7 cm
3 5 8

$2 \times 6 = 4 \times \_\_$
3 9 2

Find the missing width.



Area = 18 sq ft Length = 6 ft

Width =

Additional Practice

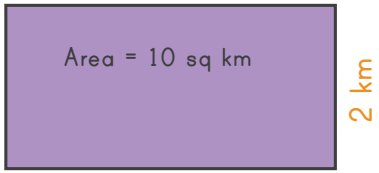
Find the value of N.

$35 \div N = 7$ $\quad N =$ _____

$12 + N = 20$ $\quad N =$ _____

$18 - N = 6$ $\quad N =$ _____

Find the missing length.



LINES, LINE SEGMENTS, POINTS, AND RAYS

Draw a line segment to connect each image to its name.

line line segment ray point

Measure the distance of each line segment in centimeters.

HI: _____ JK: _____ IK: _____

Additional Practice

Using the inch side of your measuring tape, create the following line segments by drawing and labeling the endpoints on the line below.

1. AD = 4 in
2. AB = 1 in
3. BC = 2 in

After drawing those points on the line, measure these line segments in inches and fill in the blanks.

BD = ___ in

AC = ___ in

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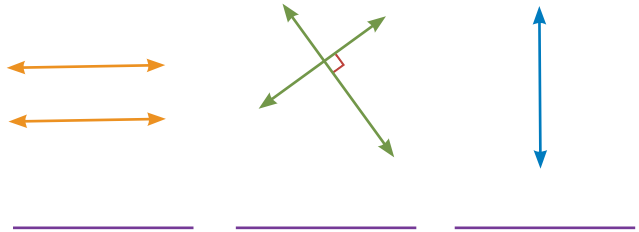
TYPES OF LINES

Identify the types of lines below by labeling them with the correct word from the word bank. Use each word only once.

vertical
parallel
perpendicular

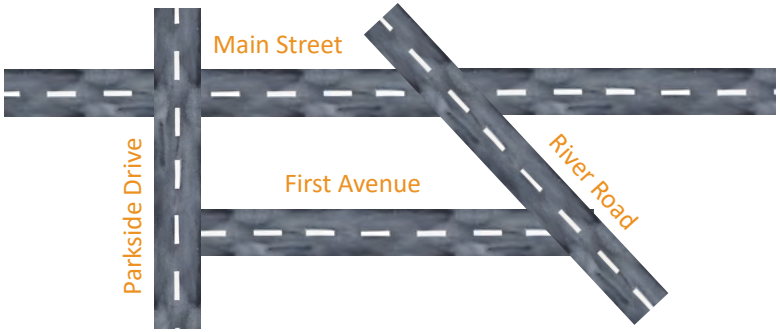


_____ _____ _____

intersecting
oblique
horizontal

_____ _____ _____

Additional Practice



Examine these roads and answer the questions with the street names.

Which streets are parallel? _____ _____

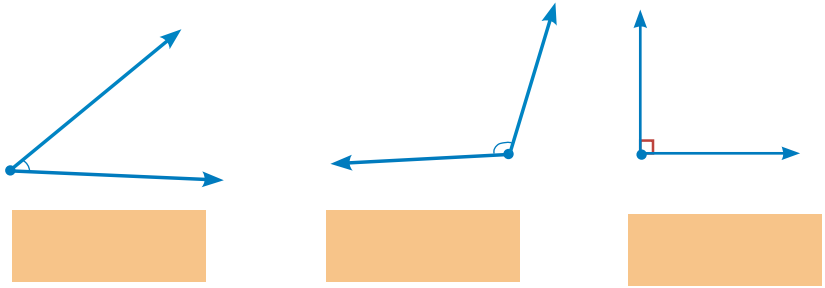
Name two streets that are perpendicular to each other.

_____ _____

Which street is oblique? _____

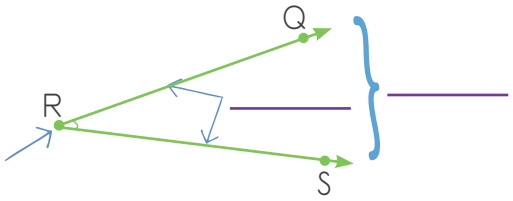
ANGLES

Label the following angles as right, acute, or obtuse.



_____ _____ _____

Label the parts of the angle using these terms: sides, vertex, and angle.



_____ _____

_____

What letter is used to name this angle?

_____

Additional Practice

Circle 4 right angles in this image.

Circle 3 acute angles in these images.

Circle 2 obtuse angles in this image.

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2D AND 3D SHAPES

Draw a line to match the geometric solid to its name.

pyramid sphere cube

cylinder cone rectangular prism

Draw a line to match the shape to its name. Circle the shapes that are quadrilaterals.

Rectangle Parallelogram Rhombus Square

Additional Practice

Draw a line to match the shape to its name. Circle the shape that is a quadrilateral.

oval pentagon hexagon parallelogram triangle

Circle the shape that has 5 faces, 5 vertices, and 8 edges.

Cross out the shape that has 6 faces, 8 vertices, and 12 edges.

UNIT CONVERSIONS

Complete the US customary system conversions.

1 ft = ____ in 1 yd = _____ ft 16 oz = ____ lb

2 yd = ____ft 2 ft = _____ in 3 ft = _____ yd

1 gal = _____ qt 1 qt = _____ pt 1 pt = _____ c

Complete the metric system conversions.

1 L = _____ mL 1 kg = _____ g

2 m = _____ cm 3 km = _____ m

Additional Practice

Complete the US customary system conversions.

3 ft = ____ yd 12 in = _____ ft 1 lb = ____ oz

4 qt = ____ gal 2 pt = _____ qt 2 c = _____ pt

Complete the metric system conversions.

2,000 mL = _____ L 4 kg = _____ g

20 mm = ____ cm 2,000 m = _____ km

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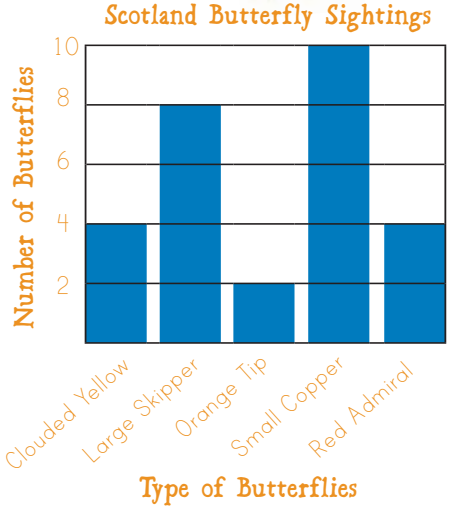
BAR GRAPHS

Use the bar graph to answer the questions.



Which butterfly was sighted the most?

How many more Large Skipper butterflies were sighted than Red Admiral butterflies?

Which two butterflies had the same number of sightings?

Additional Practice

Use the bar graph from above to answer the questions.

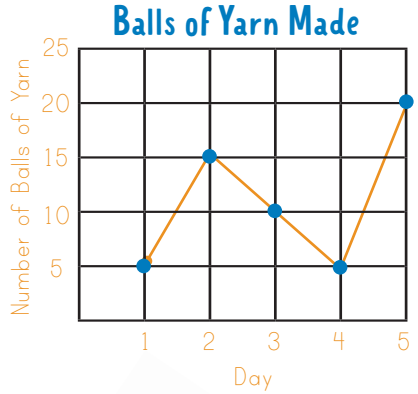
Which butterfly was sighted the least?

How many fewer Clouded Yellow butterflies were sighted than Small Copper butterflies?

How many total butterflies were sighted?

LINE GRAPHS

Use the line graph to answer the questions.



On which day did Elsie's mom make the most balls of yarn?

How many total balls of yarn did Elsie's mom make in five days?

How many balls of yarn did Elsie's mom make on Day 4?

Additional Practice

Use the line graph from above to answer the questions.

How many balls of yarn did Elsie's mom make on Day 5?

On which two days did Elsie's mom make the same number of balls of yarn?

How many more balls of yarn did Elsie's mom make on Day 2 than Day 1?

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PICTOGRAPHS

Use the pictograph to answer the questions.

Dogs Seen at the Dog Park

Scottish Terrier	🦴
Scottish Deerhound	🦴
Bloodhound	🦴🦴🦴
Shetland Sheepdog	🦴

🦴 = 4 dogs

How many Scottish Terriers were at the dog park?

Which type of dog was seen the least at the dog park?

How many more Bloodhounds were at the park than Shetland Sheepdogs?

Additional Practice

Use the pictograph from above to answer the questions.

Which type of dog had exactly 4 of its kind at the dog park?

How many fewer Scottish Deerhounds were there than Scottish Terriers?

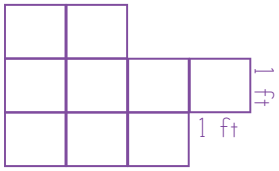
Which type of dog was seen the most at the dog park?

AREA AND PERIMETER

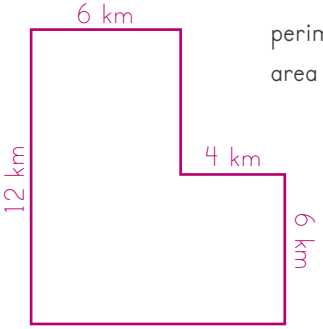
Calculate the area and perimeter of the shapes below.

perimeter = _____
area = _____

perimeter = _____
area = _____



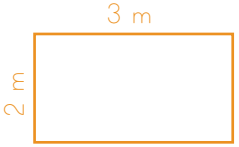
perimeter = _____
area = _____



perimeter = _____
(Do not find area.)

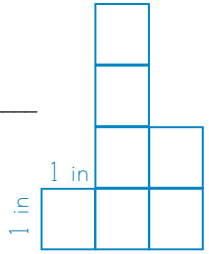
Additional Practice

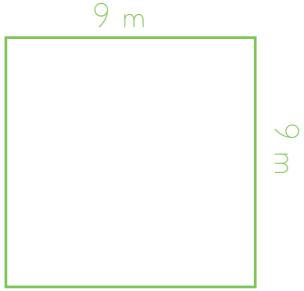
Calculate the area and perimeter of the shapes below.



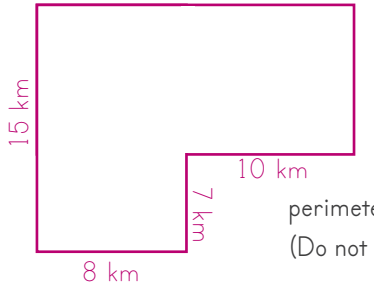
perimeter = _____
area = _____

perimeter = _____
area = _____





perimeter = _____
area = _____



perimeter = _____
(Do not find area.)

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APPENDIX

PUNCH-OUTS

Extra Supplies Needed

- none —all items are perforated and do not require any cutting

Contents

Items appear in this order:

- Lesson 4—Multiplication Sand Frames
- Lesson 13—Measurement: Yardstick
- Lesson 11—Telling Time: Set of Clocks
- Lesson 67—Area Tiles
- Lesson 23—Fractions: Jack's Garden, Kylie's Garden, Vegetable Pieces for Kylie's Garden
- Lesson 24—Gallons, Quarts, Pints, and Cups: Crocodiles
- Lesson 94—Area: Missing Side: Area Tiles
- Lesson 47—Equivalent Fractions: Fraction Bars
- Lesson 108—Coordinate Grid: Scottish Icons
- Lesson 115—Mixed Story Problems
- Lesson 100—Angles: What Kind of Angle Is It?

Tips for Parents/Teachers

- Punch-out pieces are only used for one lesson each, so you do not need to save them for future use.
- Carefully separate each piece at the perforation lines when the lesson instructs you to do so. It is recommended that you do not remove any punch-out pieces until they are needed.
- Pieces are placed so that you'll remove items toward the outside of the book before you need the items closer to the spine of the book.

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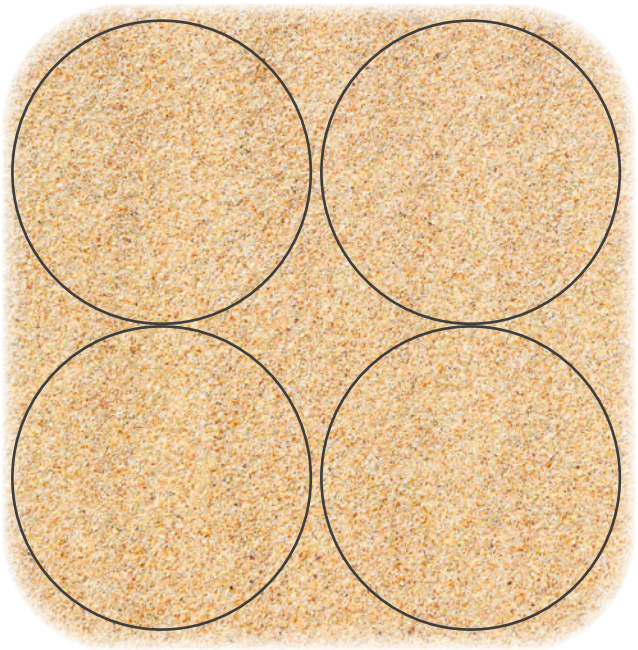
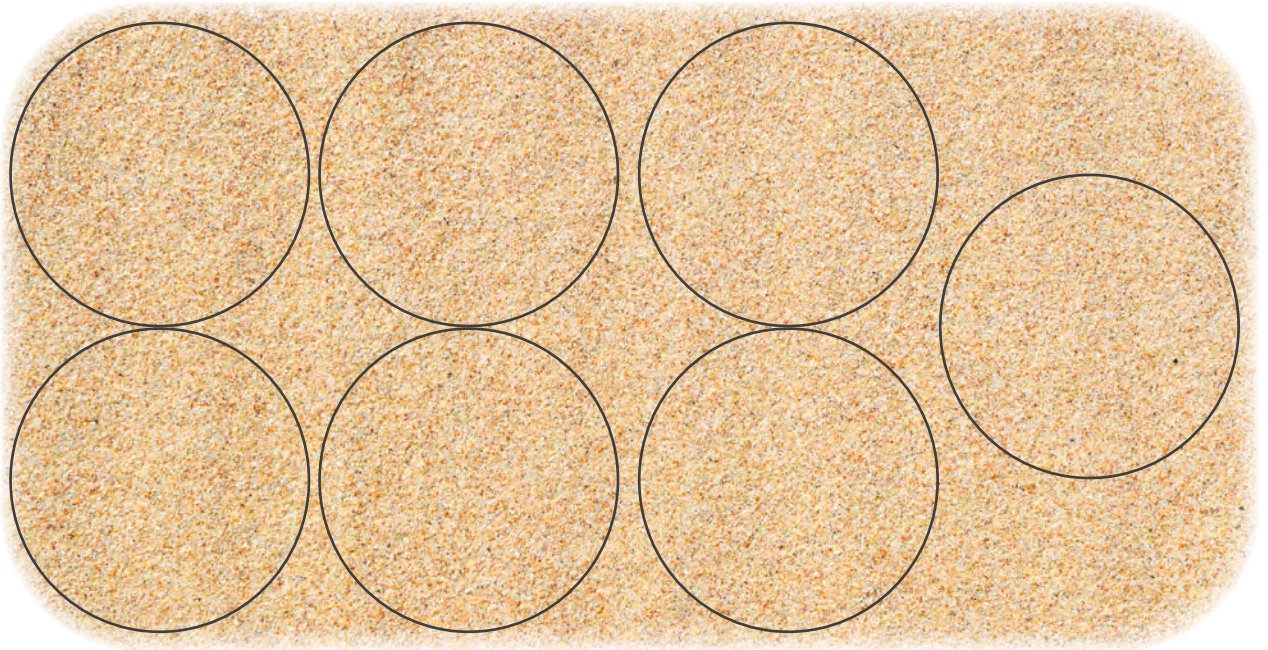
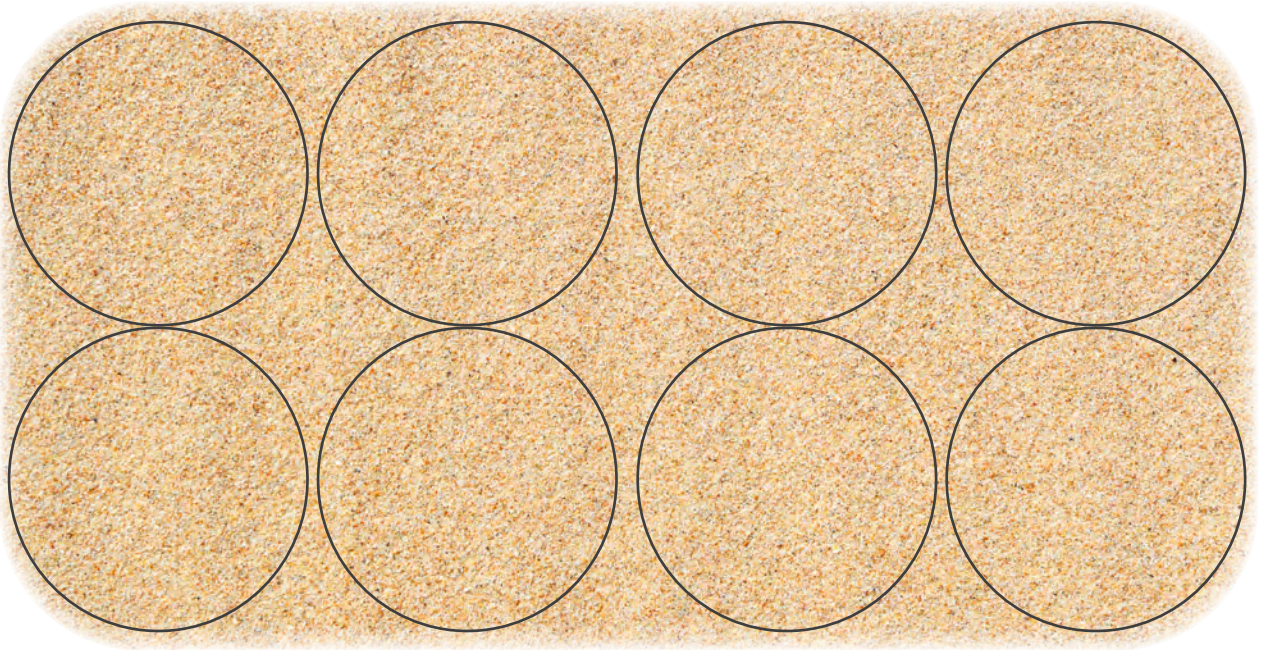
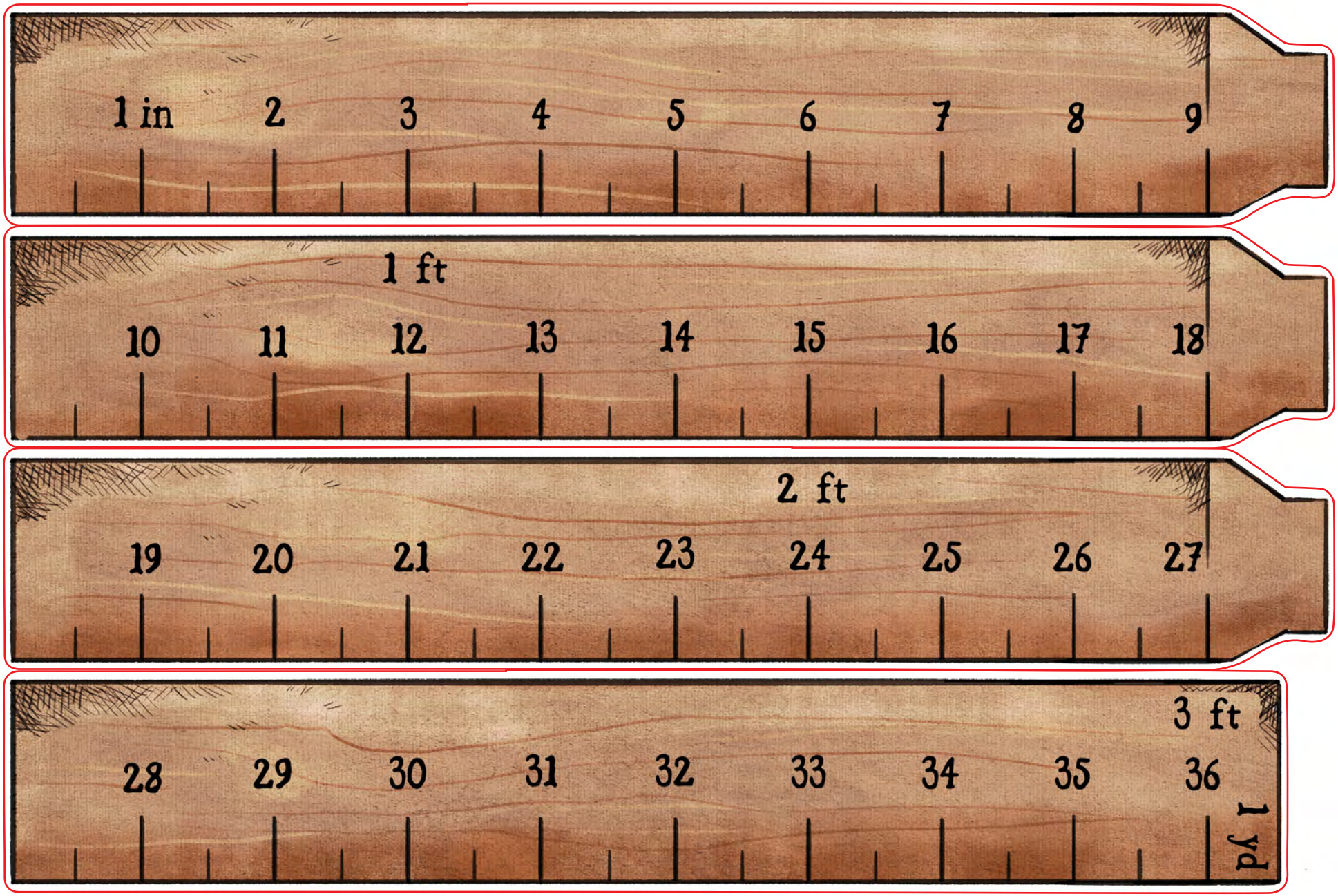
Lesson 4—Multiplication Sand Frames





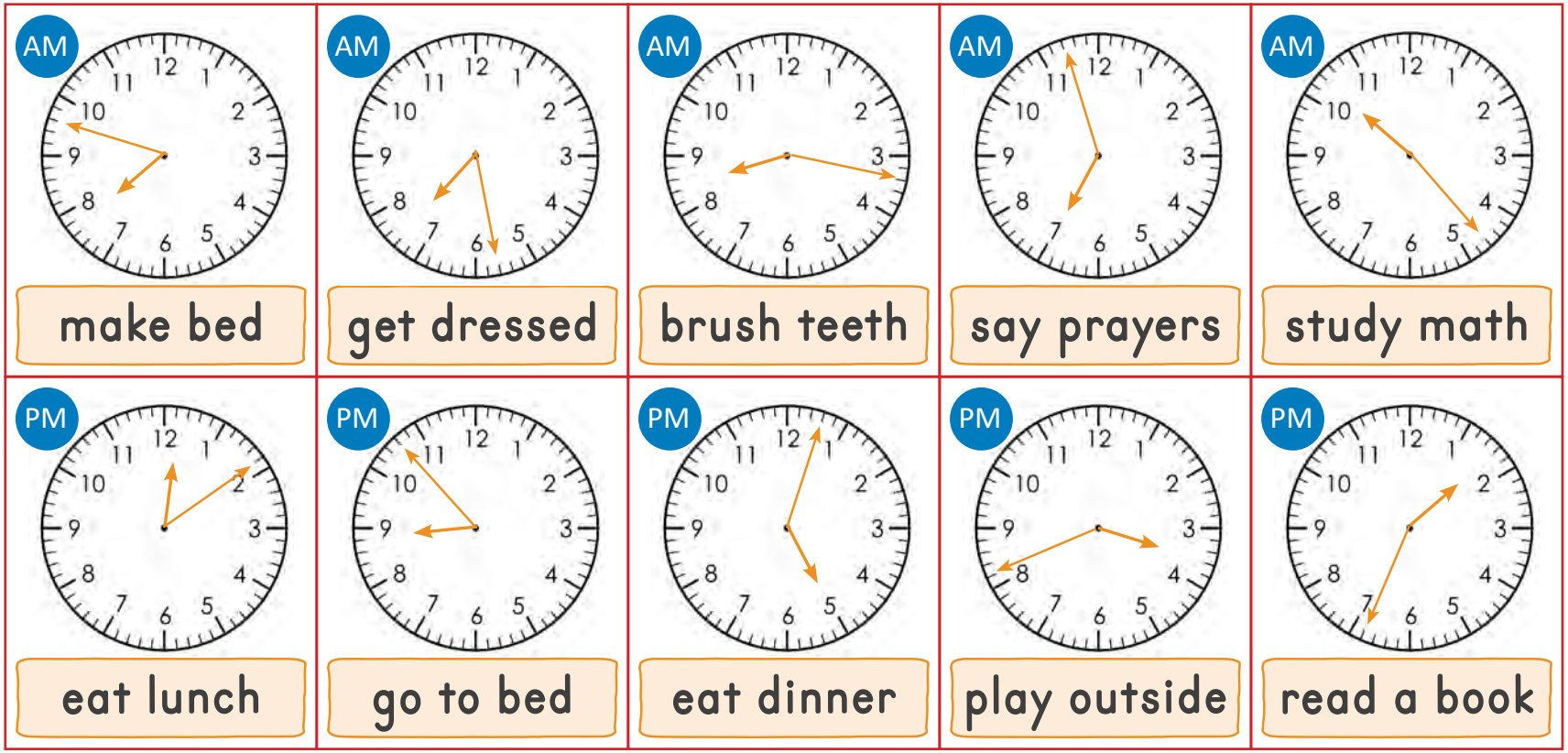
Parent/Teacher Note: Remove this page from the course book. Each frame does not need to be cut out separately.




1 in
2
3
4
5
6
7
8
9
1 ft
10
11
12
13
14
15
16
17
18
2 ft
19
20
21
22
23
24
25
26
27
3 ft
28
29
30
31
32
33
34
35
36
1 yd

Lesson 11—Telling Time: Set of Clocks

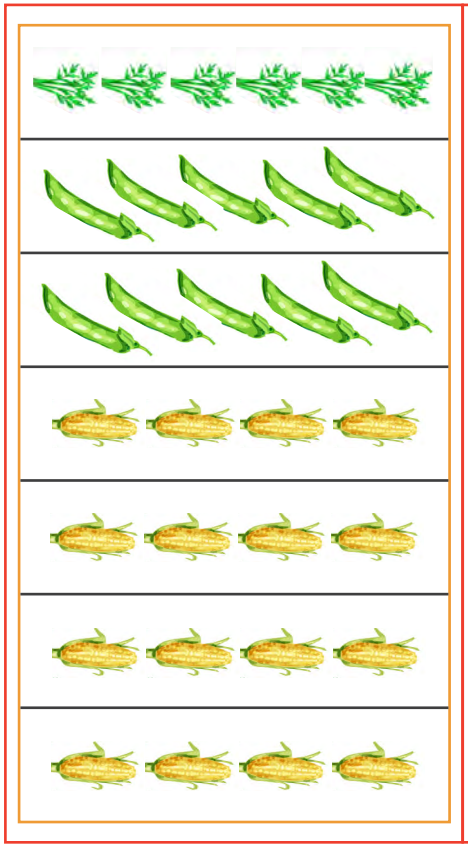
What time did Bo do that? Say each time aloud as you put the clocks in order from earliest to latest.



Lesson 67—Area Tiles

Lesson 23—Fractions

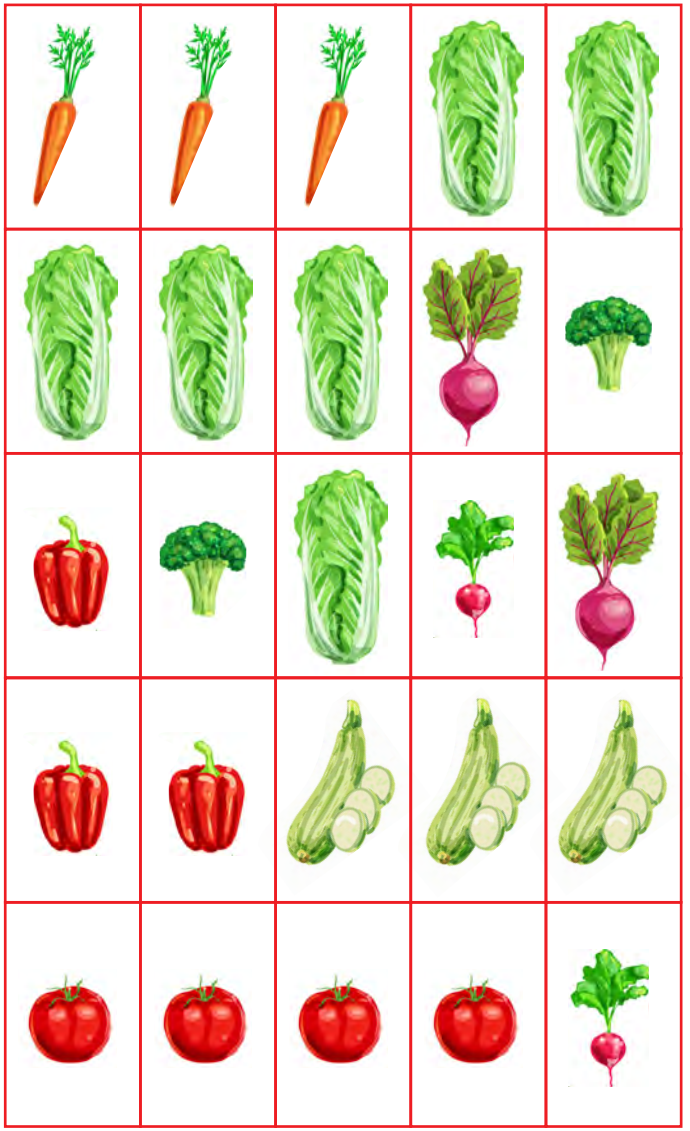
Jack's Garden



Kylie's Garden Box

Vegetable Pieces for Kylie's Garden

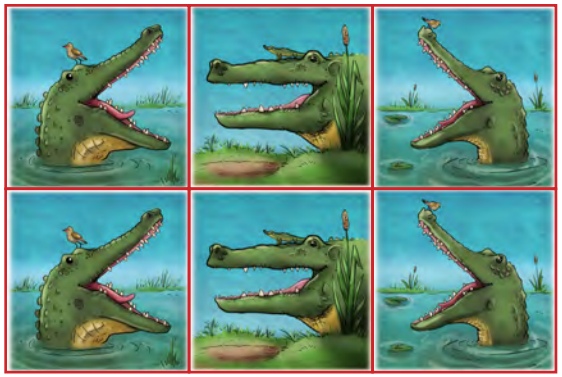
Note: The extra pieces are intentional.



Lesson 24—Gallons, Quarts, Pints, and Cups

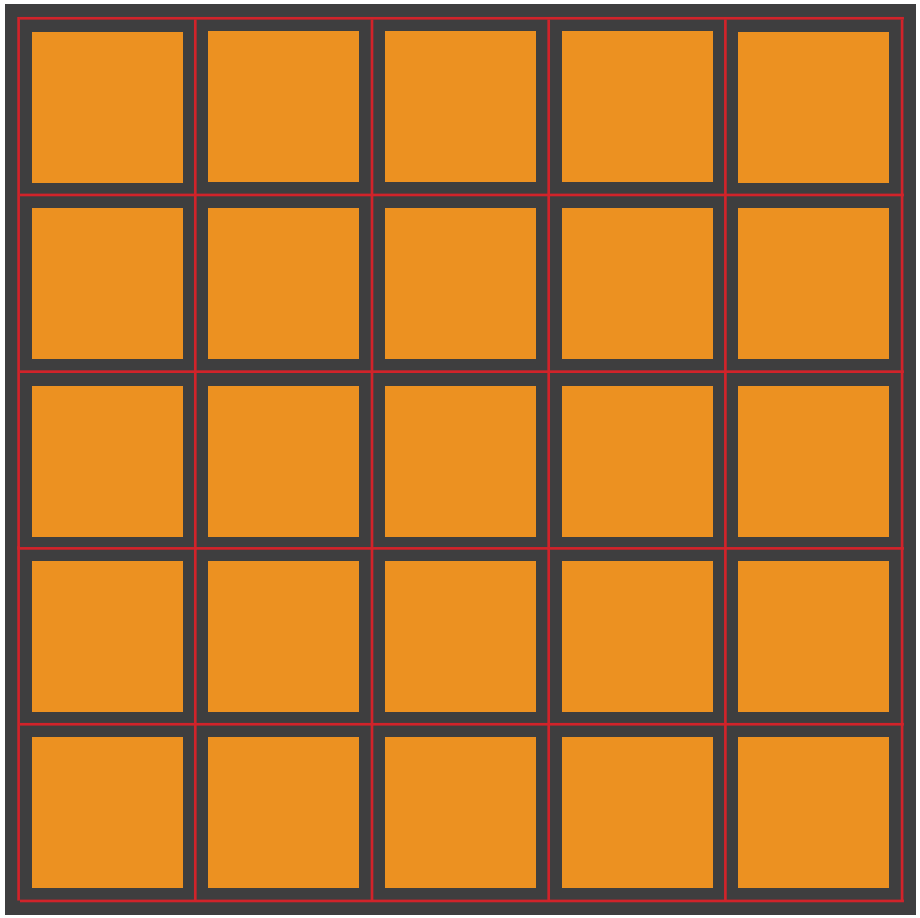
Crocodiles

Note: The straight mouth is the equal sign.



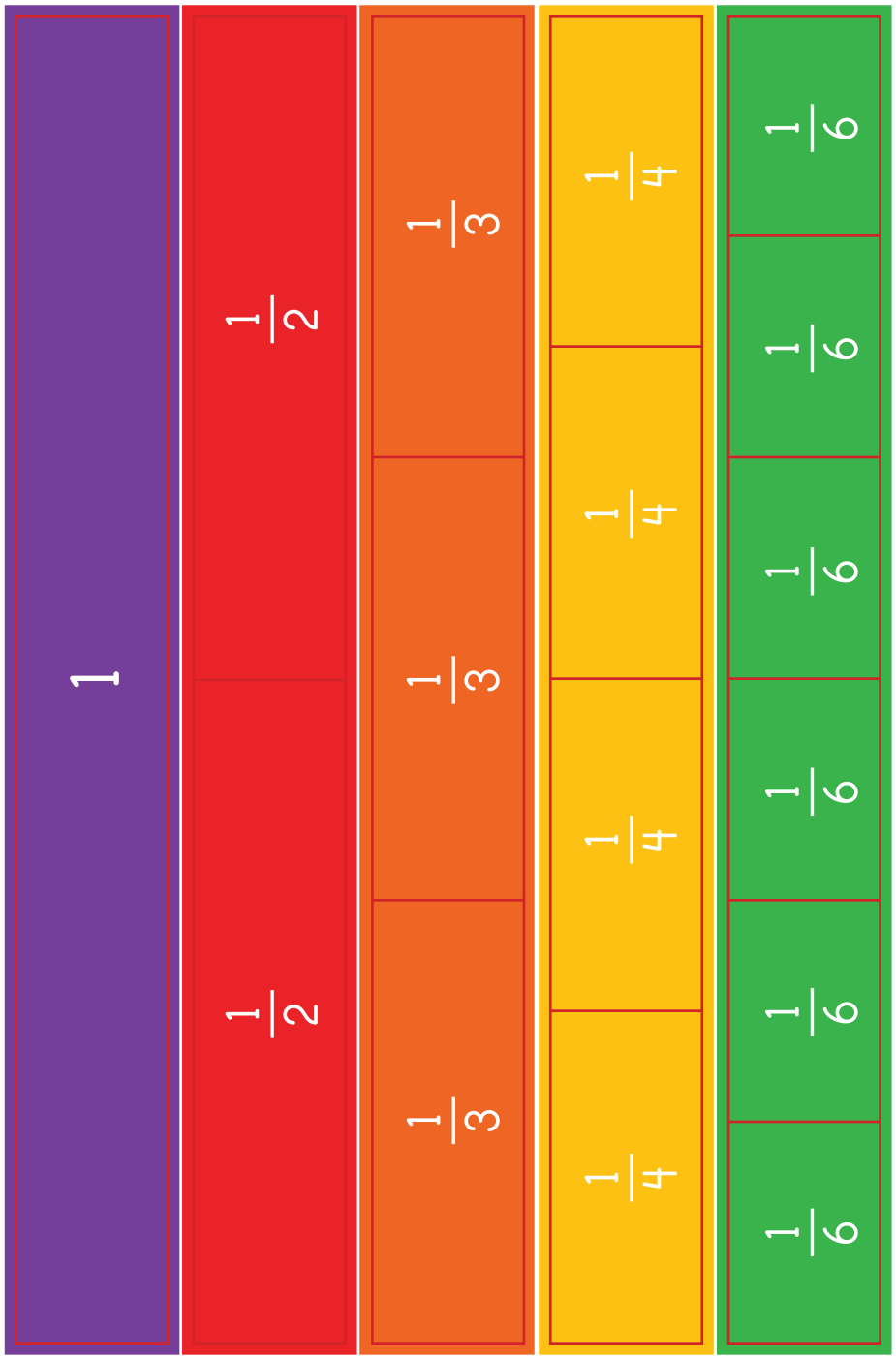
Lesson 94—Area: Missing Side

Area Tiles

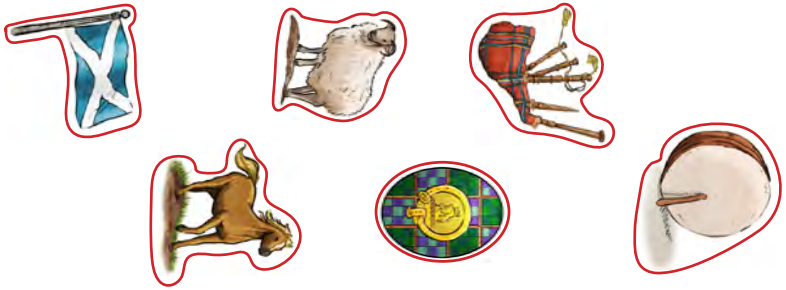


Lesson 47—Equivalent Fractions

Fraction Bars



Lesson 108—Coordinate Grid



Lesson 115—Mixed Story Problems

Mom, Dad, Finley, and Elsie are attending a Scottish festival called the Braemar Gathering. Tickets cost $7 per person. They bought 4 tickets. They paid with a $50 bill. How much change did they receive back?

They saw 6 rows of bagpipe players. There were 8 bagpipe players in each row. How many total bagpipe players were there?

The family ordered a dozen sausage rolls. They shared them equally among the 4 of them. How many sausage rolls did each person get?

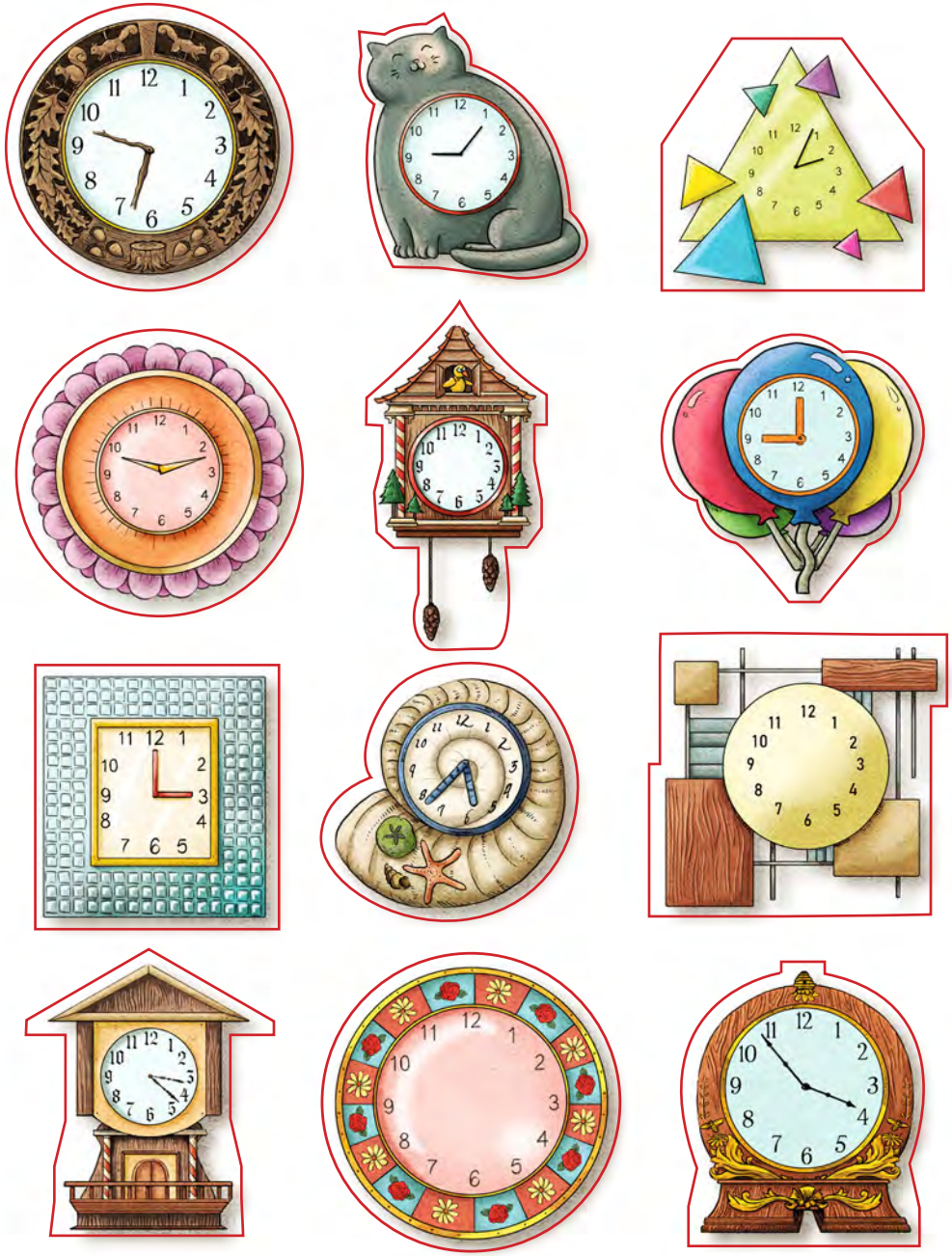
Elsie participated in the sack race event. There were 22 boys and 18 girls in the race. All the participants were separated equally into 10 lanes. How many participants were in each lane?

There are 24 players participating in the tug-of-war. They are divided into 2 equal teams. How many players are on each team?

The dancing competition consisted of 4 teams. Each team had 6 dancers. How many dancers participated in the competition?

Lesson 100—Angles

What kind of angle is it? Sort the clocks into groups based on the angle of the hands (right, acute, or obtuse). On the three blank clocks, draw a set of hands showing one right angle, one acute, and one obtuse.



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